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Smith-Douglass has 10 plants throughout the eastern half of the U.S., while Smith Agricultural Chemical Co. has four plants in Michigan, Indiana and Ohio, with headquarters in Columbus. Smith-Douglass and Smith Agricultural Chemical Co. are producers of fertilizers and chemicals.

USDA Inspector Calls Mosaic Battle 'Most Successful'

PALISADE, COLO. — The control season just closing has been the most successful in the 25-year battle to eradicate peach mosaic, according to Max Sisson, plant pest control inspector for U.S. Department of Agriculture here.

With inspection work terminated as of July 17, Mr. Sisson reported the lowest occurrence of the disease of any year since organized surveys have been made, with 1,131 mosaic infected trees reported as compared to 32,163 in peak year of 1935. In 1958, the count was 2,197 trees.

A total of 717,366 trees were inspected during the past season, as compared to 708,830 last year.

The success of the mosaic control program, said Mr. Sisson, is due to: Continued thorough inspection and prompt clean-up of disease from orchards on uniform basis in the valley; clean-up of a number of past infection centers brought on by tolerant varieties and limb clipping by growers in certain orchards; gradual removal of tolerant varieties from large numbers of orchards in the valley and no replacements of them owing to tolerant variety quarantine enforced by the State Bureau of Plant Industry; rigid enforcement of the State Peach Mosaic Act requiring growers to remove trees, when resistance is encountered, following the serving of a notice by representatives of the State Bureau of Plant Industry.

Very few cases of other viruses of stone fruits in Mesa County were observed, with no "X" disease of peach found at all, no raspleaf of cherry, and only one case of apricot ringpox.

Peach mosaic in Delta County was held to a minimum this year with only two cases of the disease found during the season. Two cases of peach wart were found, and no "X" disease cases noted. The raspleaf virus of sweet cherry continues to do much damage on Delta County sweet cherry orchards, he reported.

Minnesota Nitrogen Conference Plans Told

ST. PAUL, MINN.—Some 300 persons will attend the Minnesota Nitrogen conference at the University of Minnesota's St. Paul campus, Aug. 28-29.

Soil and crop scientists from the university, other institutions and commercial firms and farmers will review information on value of nitrogen fertilizer for Minnesota farms.

Paul Lindholm, president of the Minnesota Anhydrous Ammonia Dealers Assn., will open the morning session Aug. 28 at Green Hall. Minnesota and Wisconsin soils specialists will discuss nitrogen and its relation to soils, crops, fertilizers and yields.

The afternoon session, headed by W. P. Martin, head of the soils department at the university, will cover nitrogen in soil management, forage production, corn and ammonia in farm operations.

Discussion of the status and future of nitrogen in the north central states will close the two-day conference Aug. 29. Jack F. Criswell, Agricultural Ammonia Institute, will preside over that session.

YEARLY REPORT

NEW YORK—Commercial Solvents Corp. here reported consolidated net earnings for the year ending Dec. 31, 1958, of \$1.4 million, equal to 52¢ per share on its common stock, after deducting 25¢ per share to adjust the carrying value of the company's investment in its Canadian affiliate, Northwest Nitro-Chemicals Ltd. A dividend of 5¢ per share was also declared on the outstanding common stock.

'FARMER OF MONTH' CREDITS FERTILIZER

TIFTON, GA.—Eugene Hill, 23-year-old Tift County farmer of the Eldorado Community in Tift County, who has been chosen "Farmer of the Month" by the Tifton Kiwanis Club, considers his program of high fertilization an outstanding factor in his success.

Mr. Hill uses fertilization practices recommended by agricultural technicians. He operates a 140-acre farm, and has 12 acres of tobacco, 10 acres of cotton, 46 acres of peanuts, and 70 acres of corn, in addition to raising hogs and cattle.

The farmer makes an average of a ton of tobacco to the acre, using 1,800 lb. of 3-9-9 fertilizer and 200 lb. of topdressing to the acre. On his cotton he uses 700 lb. of 5-10-15 with 200 lb. topdressing and makes from a bale to a bale-and-a-half to the acre, which is above average for this area.

Mr. Hill uses 700 to 800 lb. 4-12-12 fertilizer on his corn and sidedresses with anhydrous ammonia, and makes about 65 bu. to the acre, in comparison with about 32 bu. average for the state. He uses 400 lb. 4-12-12 per acre on his peanuts, all as sidedressing, and makes from three-quarter ton to a ton per acre.

Mr. Hill feels that it is useless to grow a good crop and then let the diseases and insects get it. Therefore, he follows a recommended schedule of dusting for boll weevils and boll worms; dusts for tobacco worms; and dusts peanuts for leafspot and worms.

California Agricultural Pests, Control Methods, Subjects of 'Pesticide Review'

SAN JOSE, CAL.—Specific problems on attacks by agricultural pests on California farm crops and how to repel them will be the subjects of a day long "New Pesticides Review" session for Central California.

The review is sponsored by the Western Agricultural Chemicals Assn., and is scheduled for Thursday, Sept. 10 at the Fresno Fairgrounds, Fresno. Representatives of several pesticide manufacturing firms as well as researchers from the agricultural college of the University of California, will participate in short discussions dealing specifically with enemies of several given crops raised in central California.

Among the speakers and their subjects will be Ivor R. Burden of United-Heckathorn, Richmond, president of the WACA; Fred L. Jensen, Visalia farm advisor, talking on grapes; Dr. T. L. Leigh, entomologist, talking on cotton; D. J. Raski, nematologist, talking on nematodes and salad crops; W. A. Harvey, weed control specialist, talking on weed killers; A. E. Michelbacher, Berkeley entomologist, talking on tomatoes, beans, and melons; Karl W. Optiz, farm advisor, talking on citrus; E. M. Stafford, entomologist, talking on stone fruits, olives and nuts; John E. Swift, entomologist, talking on practical field aids, and Oscar G. Bacon, entomologist, talking on potatoes and seed alfalfa.

The two closing discussions will be led by R. Z. Rollins, chief of the Bureau of Chemistry, Sacramento, who will speak on the responsibilities of a

pesticide salesman, and H. C. Moore of Tulare, on air application of pesticides.

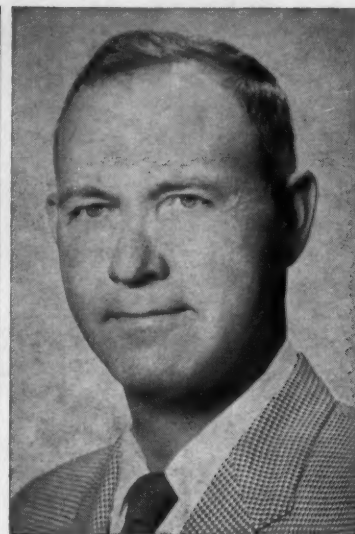
Cooperating sponsors include the California Farm Bureau Federation, the Agricultural Extension Service, the University of California and the California Department of Agriculture, and the California Agricultural Aircraft Assn.

U.S. Borax Reports 213% Income Increase

LOS ANGELES — United States Borax & Chemical Corp. net income of \$4,676,029 for the nine months ended June 30, 1959, represented an increase of 213% over net income for the comparable period a year ago, it was noted in the company's third quarter report to shareholders. U. S. Borax had reported net income of \$1,493,061 for the first nine months of fiscal 1958 when start-up expenses at the new borax plant at Boron adversely affected earnings.

James M. Gerstley, president, said profits for the current nine months period were equal, after preferred dividend requirements, to \$1 per share on the 4,186,925 shares of common stock outstanding. This compared with 24¢ per share on the 4,186,225 shares of common stock outstanding on June 30, 1958.

Sales for the nine months ended June 30, 1959, increased 19% to \$47,319,803; sales of \$39,800,673 were reported for the same period last year.



Dan W. Chisholm

Dan W. Chisholm Promoted by Amchem

AMBLER, PA.—Amchem Products, Inc., Ambler, has announced the promotion of Dan W. Chisholm from southern district sales supervisor to manager of farm chemicals sales. This appointment brings to three the total number of sales setups in Amchem's agricultural chemicals division.

For the past 2½ years, Jack P. Taylor has headed up sales of agricultural industrial chemicals, while Joseph H. Torchiana has been in charge of lawn and garden (small package) sales since September, 1958. All three men report directly to M. B. Turner, general sales manager of the agricultural chemicals division.

Mr. Chisholm joined Amchem as a salesman in April, 1952. A native Texan, he holds a B.S. in agronomy from Texas Tech and master's degree in the same subject from South Dakota State College.

NPFI Traffic Group To Meet in Texas

WASHINGTON—A meeting of the traffic committee of the National Plant Food Institute will be held on Wednesday and Thursday, Oct. 7-8, 1959, at Houston, Texas, announced John S. Carlson, general traffic manager, Stauffer Chemical Co., New York.

The business meeting of the committee is scheduled to be held in the Neches Room, Rice Hotel, Houston, on Oct. 7, beginning at 9:30 a.m., and the next day, the committee will be guests of the Texas Gulf Sulphur Co. for a trip to view the sulfur mining and refining facilities of the company at Newgulf.

Mr. Carlson said that a block of rooms had been reserved for the meeting at the Rice Hotel and reservations should be made directly to Alfred Nelin, reservations manager, the Rice Hotel, Houston, Texas.

R. V. (Bob) Peabody, general traffic manager of the Smith-Douglass Co., Norfolk, Va., is vice chairman of the traffic committee and Paul T. Truitt, executive vice president of NPFI, is secretary.

Mr. Carlson said that a complete agenda would be mailed to members of the committee in advance of the meeting and urged full attendance because of the importance of traffic subjects to be discussed.

NEW EXTENSION DIRECTOR

LITTLE ROCK, ARK.—C. A. Vines of Little Rock has been promoted to director of the Arkansas Agriculture Extension Service effective July 1. Announcement of the promotion was made by Ezra Taft Benson, secretary of agriculture. Agriculture department officials said Mr. Vines was elevated to the new post under a reorganization plan being carried out in the University of Arkansas College of Agriculture and Home Economics.



NEW PLANT—Howard Gilman, executive vice president and treasurer of the Gilman Paper Co., announced the placing of a contract with the S. S. Jacobs Co. of Jacksonville, Fla., who will erect a modern converting plant of approximately 300,000 sq. ft. in St. Marys, Ga. The architects are Ketchum & Sharp of New York. The building will house under one roof the combined multiwall bag plants, grocery bag plants, and other converting operations of the Kraft Bag Corp., subsidiary of the Gilman Paper Co. The plant will be served by two sidetracks of the St. Marys Railroad, which is owned by the St. Marys Kraft Corp. This is a fully dieselized railroad, which operates between St. Marys and Kingsland, Ga., where it connects with the Seaboard Airlines Railroad.

Californians, USDA Commence Inspection For Hoja Blanca Rice Disease Evidence

SACRAMENTO—Plant pathologists and entomologists of the California Department of Agriculture and California county agricultural commissioners in rice growing counties have joined U.S. Department of Agriculture personnel in California in a search for evidence of hoja blanca, a destructive virus disease of rice, and for the insect vector which spreads it.

Inspections in California started Aug. 3 with inspection crews being made up of federal, state, and county personnel. The survey will continue through the present growing season.

This is part of a nationwide program in which regulatory and research workers of California, Mississippi, Louisiana, Arkansas, and Texas are cooperating with USDA workers.

In Spanish, hoja blanca means white leaf, and is pronounced "o-hah blän-kah." It is caused by a virus spread by a leaf hopper. Diseased leaves turn streaked yellowish-white, and plants often fail to head.

Hoja blanca disease was first found in the U.S. in 1957 at the Everglades Agricultural Experiment Station, Belle Glade, Fla. In the fall of 1958, it was found again at Bay St. Louis, Miss. Areas found to be infected consisted of five fields comprising less than 400 acres. Eradication action was applied promptly in both infected areas.

In 1958, surveys of 25,000 acres on 500 other farms in the rice-producing areas of Arkansas, Louisiana, Mississippi, and Texas failed to reveal any evidence of the disease or its insect

vector. A survey also was conducted during 1958 by the Bureau of Plant Pathology of the California Department of Agriculture in cooperation with agricultural commissioners in rice growing counties during which 3,242 acres of rice were inspected on the 139 plantings visited. Neither the disease nor the insect vector was found in California. Plant pathologists are concerned that the hoja blanca disease has been found in the U.S. because it can greatly reduce yields in infected fields and completely ruin a crop, particularly a late planting. It has been found in Cuba and several Central and South American countries since 1952. USDA says hoja blanca cut Cuba's 1956 rice crop by an estimated 25% and yields in some Cuban fields by 50%.

Idaho Agents Report New Virus Activities

BLACKFOOT, IDAHO—Every year new diseases, some of them viruses, creep into farm crops to force more and more scientific methods of diagnosis and treatment, reported Milton B. Weston, Bingham County agent.

He and other agents of southeastern Idaho have just made a study with Roland W. Portman, extension entomologist, and Harry S. Fenwick, plant pathologist, of viruses showing up for the first time in this area.

Yellow Dwarf, a virus in barley, was found in Bingham County. A survey is underway to determine how extensive it is.

Experts estimated loss in affected fields from 50 to 75% of the barley crop, depending upon how old the infection is.

It appeared also that fields planted early fared better than those planted

late. Some oats were also affected by the virus. Though it is known that it sometimes attacks wheat, no evidence was found in Bingham County.

Mr. Weston also stated that early blight in potatoes, which showed up last year, is on the increase. Study has revealed some methods of combat.

Early blight is known to be virus produced fungus. In Bingham County it is more prevalent in sprinkler irrigated sectors than in the flood systems, and it spreads more rapidly when humidity is high.

THIRD DUSTER CRASHES

BONHAM, TEXAS—The third crop duster crash for this area during the year sent Henry Gardney of Crystal City, Texas, to a hospital. He received cuts, burns and bruises when his plane struck a power line and burned. In two previous crashes, one crop duster was killed and the other injured.

Speed handling, reduce pile set with Du Pont URAMON[®] Ammonia Liquors



Dr. C. F. Chappel



Dr. T. M. Means

Eli Lilly Appoints New Ag Sales Manager, Research Personnel

INDIANAPOLIS, IND. — The appointment of a new agricultural sales manager and several agricultural research personnel to administrative positions have been announced by Eli Lilly & Co., Indianapolis.

Dr. Charles F. Chappel has been appointed manager of agricultural sales, according to O. B. Swearingen, director of sales for the agricultural and industrial products division.

Dr. Chappel has been associated with the company since 1955 when he joined the firm as a biochemist in charge of animal nutrition research. In 1958 he was named technical specialist in the agricultural and industrial products division. He was employed by the Beardstown (Illinois) Mills Co. as director of research and nutrition before joining Lilly.

Dr. Thomas M. Means, former assistant head of animal nutrition research, has been named head of agricultural research, according to Jean F. Downing, director of the agricultural research division.

Dr. Means has conducted animal nutrition investigations since joining the firm in 1956. Prior to that, he was an instructor in animal husbandry at Purdue University, West Lafayette, Ind., and was in charge of the university's sheep program.

Named under Dr. Means were Dr. Edwin F. Alder, assistant head of plant science research; Dr. Robert N. Berkman, D.V.M., assistant head of veterinary science research, and Frank O. Gossett, D.V.M., assistant head of animal clinical research.

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fits of UAL begin. UAL provides nitrogen in both the urea and ammonium form—nitrogen that becomes available at a rate closely paralleling plant requirements. Nitrogen from Du Pont UAL is also leach-resistant; remains in the root zone long after other forms have been exhausted.

Du Pont UAL is available in five forms, including UAL-37 for even more gradual nitrogen release, and UAL-S with the added conditioning effects of ammonium sulfate. For information on which type is best suited to your needs, write Du Pont.

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INSECT, PLANT DISEASE NOTES

Missouri Crops 'Free' Of Insect Damage

COLUMBIA, MO.—With the exception of cotton in southeast Missouri, crops over the state are relatively free of insect injury. There is a possibility of trouble developing from several pests, however, and farmers were warned to watch for them.

Fall armyworms were one of the insects to be feared, particularly in corn which has not yet tasseled.

Spotted alfalfa aphids were still increasing and could easily become a problem in the fall.

Webworms were showing up in a few alfalfa fields, and early cutting might be in order in some fields to stop the damage.

A warning was issued about insects in farm-stored small grains.



Second Generation Weevil Doubles Puncture Trouble

KNOXVILLE, TENN.—Second generation emergence of the boll weevil has caused the percent of punctured squares to double over that of the last report. Square counts for the infested counties averaged 27% as compared with 13% the previous week.

Some local migration was taking place as the older fields were beginning to cut out. Weevils were maturing in some fields where there has been no control.

Scattered showers continued to make conditions ideal for further weevil buildup on the infested areas.

Boll worms were increasing slightly. The small worms that are in the fields now are probably third generation. Some control is being done. Predatory insects were numerous in all infested fields, which should be kept in mind before starting control measures.

Aphids were heavy in some fields where the fields were treated for worms and weevils.

Spider mites were causing severe damage in spots within the fields. These spots were getting larger and complete defoliation and boll drop is resulting. Mites were being found in fields that have never been infested before.

White flies were present in some fields but no damage could be found.—R. P. Mullett.

Insects Seriously Damage Cotton Plants in Arizona

PHOENIX, ARIZ.—Insects, especially lygus and beet armyworms, continued to cause serious injuries to cotton plants in many fields. Controls were needed at once in most fields if a good yield is desired in 1959. Farmers still did not seem to realize the lygus were feeding on all sizes of squares and causing them to shed.

In Maricopa County, it was reported that beet armyworm populations continued to be medium to heavy in some fields in the Scottsdale and Buckeye areas. Insecticidal control was successful in most cases. A virus disease was controlling some of the worms.

Cabbage loopers increased in some fields in Maricopa County. In the Gila Bend and Buckeye areas a complex of loopers and beet armyworms existed.

Lygus bugs continued heavy in many fields. An average of 20 lygus

per 100 sweeps of a bug net and an average of 40% punctured squares existed in many fields in the county. Some stink bugs were found in the Tolleson and Litchfield Park areas.

In Pima County, lygus counts in the Sahaurita and Amado areas ranged from 15 to 50% of the squares being injured.

In the Marana area, the lygus counts ranged from 7 to 50% punctured squares. Controls were needed in many fields.

An average of 25 lygus per 100 sweeps were found in Graham County. Bollworms were also on the increase.

Yuma County reported lygus bugs were injuring 90% of the squares in the tops of the older fields and control was needed for these fields. Stink bugs in the Yuma area showed an average of four per 100 sweeps and considerable damage was noted to bolls in some fields.

Cotton bollworms were on the increase in Yuma Valley. Some fields averaged five to six worms per 100 terminals.

Cotton leaf perforator populations were heavy in some fields in the Parker and Yuma areas. Field crickets were also injuring the edges of some fields in the county.—J. N. Roney.

Boll Weevil Infestations Increase in North Carolina

RALEIGH, N.C.—Reports from 15 counties show that boll weevil infestations have greatly increased. The advantages of early season control of the boll weevil are still apparent, even though weevils have already moved about to infest virtually all fields in the state.

Insecticide applications should be

continued at four to five-day intervals as long as cotton is squaring.

Aphids and spider mite infestations continued to appear in scattered fields throughout the state.

Low infestations of bollworms were reported from a few fields. A third brood of bollworms can be expected at any time during the next few weeks. As soon as the corn crop matures, the bollworm moths will move to cotton, and most of the cotton crop is especially attractive this season.—Dr. Walter Mistic.



'Hopper Threat Lighter In Great Plains Area

MANHATTAN, KANSAS—Grasshopper infestations are lighter in most Great Plains states this year, although this pest is a serious threat to crop and range land in parts of New Mexico, South Dakota, and Wyoming, the Great Plains Agricultural Council was told at its recent annual meeting in Santa Fe, N.M.

Soil bank land as a potential source of grasshopper infestation is being studied by the council's insect control committee, said Harold E. Jones, director of the Kansas State University Extension Service, Manhattan.

Because local groups in some areas have expressed concern regarding soil bank land as possible sources of migratory grasshopper infestation, Dr. Jones' committee asked each of

the 10 Great Plains states for a report.

"There seemed," Dr. Jones said, "to be a general consensus that these areas have not constituted, to date, a specific threat to build-up of migratory grasshopper infestations. In at least some states, the opinion was expressed that the problem was no more severe than on the non-contract acreages. Likewise, in most instances, the grasshopper population was of a non-migratory nature."

'Spectacular' Alfalfa Weevil Spread in Colorado

FT. COLLINS, COLO.—Spread of the alfalfa weevil during the past three years has been spectacular, according to reports from the Colorado Insect Detection Committee. Infestation is "very heavy" through the upper Arkansas Valley. The problem is particularly serious in Pueblo County.

The committee also rated the infestation as "heavy" in Montezuma County and in northeastern Colorado.

Welcome news in northeastern Colorado was a heavy migration of lady bird beetles from Larimer County foothills areas to the farm land to the east. The predator feeds on other insects, primarily aphids.

Psyllids, both adult and nymphs, have been noted in high numbers on matrimony vine in the Arkansas Valley. They are particularly evident in Prowers and Bent counties. But there has been no strong movement to potato or tomato fields and counts remain low on those crops.

Mexican bean beetle has shown up in considerable numbers along the foothills areas of Larimer and Boulder counties, but none has been reported from western Colorado.

In Larimer and Weld counties, the sugar beet webworm situation is serious enough to warrant general control measures.

European elm scale is present on ornamentals in Montezuma and Larimer counties.

Cherry Fruit Fly Found At Mt. Shasta, California

SACRAMENTO—Cherry fruit fly has been found on four properties at Mt. Shasta, Cal., according to the California Department of Agriculture.

The pest was not known to have existed in that area previously although it had been found along the Klamath River for several years.

A few new outbreaks of the cherry fruit fly also have been reported in Humboldt County, principally in the Trinity River Valley.

The pest has been known to have infested bitter cherries along the base of Mt. Shasta since earliest settlement days. The lateness of the native fruits, to which the hatching of the fly had been geared for countless generations, was considered protection for early ripening domestic cherries. This leads some entomologists to believe that the cherry fruit fly larvae are adapting their life cycle to changed conditions.



Corn Rootworm Damage Appears in Iowa Fields

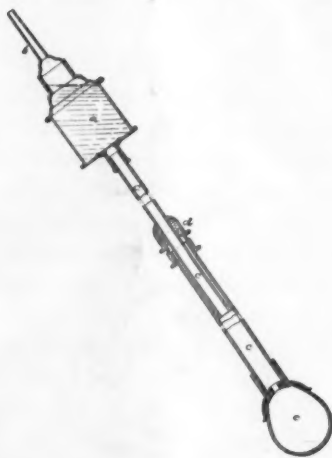
AMES, IOWA—The European corn borer's second generation emergence is complete at Ankeny with 92% of the first generation borers pupating. In Boone County 32% of the borers are in the fifth instar, 32% pupae, and 36% emerged.

Egg mass accumulation on late corn at Ankeny has reached 21.7 per 100 plants; most of the eggs have hatched. Only one egg mass has been found in 32 fields in Boone County.

There is no need to be further concerned about the second generation.

Corn rootworm damage is beginning to appear in field corn following rains and wind. The damage is evidenced by lodged corn, and in some

Saga of Insect Pest Control



IT IS enlightening to note that inventors during the hectic days of the U.S. Civil War were thinking of means of killing insects rather than their fellow-men. Two mechanically-minded New Yorkers, Peter Reynard and Victor Varin, on the 14th of May, 1864, patented a "new and useful means for destroying insects" which enabled the operator to blow powder onto the bugs. The device, drawing of which appears above, was made so bugs in trees and in other inaccessible places might be treated.

The applicator comprised a hollow handle or pipe extending from a compressible ball to a vessel containing the powder to be blown onto the bug. The tube was jointed in such a way that extensions of gaspipe or other similar material might be added to lengthen the device. The operator was to squeeze the rubber ball at the lower end, thus creating a draft of air upward through the tube. The nature of the "powder" to be used was not indicated in the patent.

cases by the corn plant beginning to grow upward again, giving the plants the curved goose-necked appearance.

Mealworms have been reported doing damage to ear corn in cribs. These are wireworm-like larvae which sometimes reach a length of 2 in. The adult is a dark brown to black beetle which congregates in window sills and around lights.

Cicada-killer wasps are making their annual appearance. These are gold, brown and black wasps with smoky brown wings, approximately 2 in. long. They are most frequently noticed digging or entering holes in lawns. They paralyze a cicada and place it in the bottom of the hole, and then lay an egg on it. In this way they provide food for their larvae.



FIGHTING FACE FLIES

WOOSTER, OHIO—Researchers at the Ohio Agricultural Experiment Station here are searching for new ways to control the "face fly," a new pest attacking Ohio cattle this summer.

The pest looks much like the common house fly, according to Claude R. Neiswander, experiment station entomologist, but it has a habit of freckling the eyes, muzzle and nose of cattle.

The annoyances it causes could greatly reduce milk and meat production, he said.

The experimenters said a spray of methoxychlor will protect the cattle for about two weeks.

Second Brood European Borer Due in Wisconsin

MADISON, WIS.—The moth flight, which gives rise to the second brood of European corn borer, is well underway, and it appears that the area where there will be a high percentage of two broods may extend north and eastward further than last year. Also the recent alert given for corn earworm is still in effect, since seasonal development and populations of this insect furnish an indication of earlier and heavier infestations.

A recent dissection of field corn near Rochelle showed 8% of the moths of the European corn borer had emerged, 20% were pupae, 36% were in the fifth larval instar and 36% were in the fourth larval instar. At Platteville, such figures were difficult to obtain in one field where over 50% of the borers were parasitized in a light infestation, but it appeared that moth emergence, pupae and larvae, would compare favorably with Rochelle, except that there were fewer fourth instar larvae and more pupae.

Corn leaf aphid populations appeared to be on the decline in many southern Wisconsin corn fields. In Fond du Lac and Calumet counties, 0% to 100% of the plants were infested; and further north and east, in Oconto and Outagamie counties, infested plants ranged from 32% to 80%. Where 0% of the plants were infested, in Calumet and Fond du Lac counties, corn borer treatments had been applied.

Red-legged grasshoppers, in the fourth and fifth instars, appear to have highest populations (30-40 per sq. yd.) in eastern Portage and western Waupaca counties. Fields with as high as 40 per sq. yd. were found in Waushara, Marquette and southwestern Marinette counties, but such fields were not numerous. Shawano and Oconto counties have some fields with economic numbers, but counts were lower. Chippewa and Winnebago are two of several counties that also would be included in this latter category. Damage is obvious in fields with high counts. However, it appears that in at least some of the southern and western counties there will be fairly high counts, but in these counties

hatching has been late. Growth in much of the alfalfa acreage has been lush and rapid, and some early cut fields are now ready for a third cutting. Where the grasshoppers are small (second-third instar) but numerous, it is expected the regrowth after the third and late second cutting will suffer damage unless treatment is made.

Potato leafhoppers in alfalfa are abundant, but populations vary between fields. Variance appears due to migrations resulting from cutting as related to potato leafhopper development. This helps to explain why yellowing due to leafhoppers is present in some fields and absent in others. Presently, migration appears great and general, and, like grasshoppers, will undoubtedly affect regrowth after third and late second cuttings in untreated fields.

Alfalfa plant bug migrations also continue according to field sweeps and blacklight insect trap catches. It is these adults which will give rise to

the next (and last) generation of the season in the same alfalfa regrowth mentioned for grasshoppers and leafhoppers. Control for these alfalfa insects can be made simultaneously.

The pea aphid population build-up, especially in blossomed alfalfa overdue for cutting, has been phenomenal for this time of the year, but appears to be insignificant in relation to other factors important in quality hay production.

Winged potato aphids have been present in fair numbers in some southern Wisconsin tobacco fields. Whether they will be able to build large colonies remains to be seen. If a careful watch indicates large populations, these aphids can be controlled with nicotine sulfate.

Space Available

PITTSBURGH—The exhibits committee of the Entomological Society of America announced the availability of exhibit space for the first Joint

Meeting of the Entomological Society of America, Entomological Society of Canada and Entomological Society of Ontario, at the Sheraton-Cadillac Hotel in Detroit, Mich., Nov. 30-Dec. 3.

Interested persons were asked to contact Arnold Mallis, co-chairman, Exhibits Committee, Entomological Society of America, c/o Gulf Research & Development Co., P.O. Drawer 2038, Pittsburgh 30, Pa.

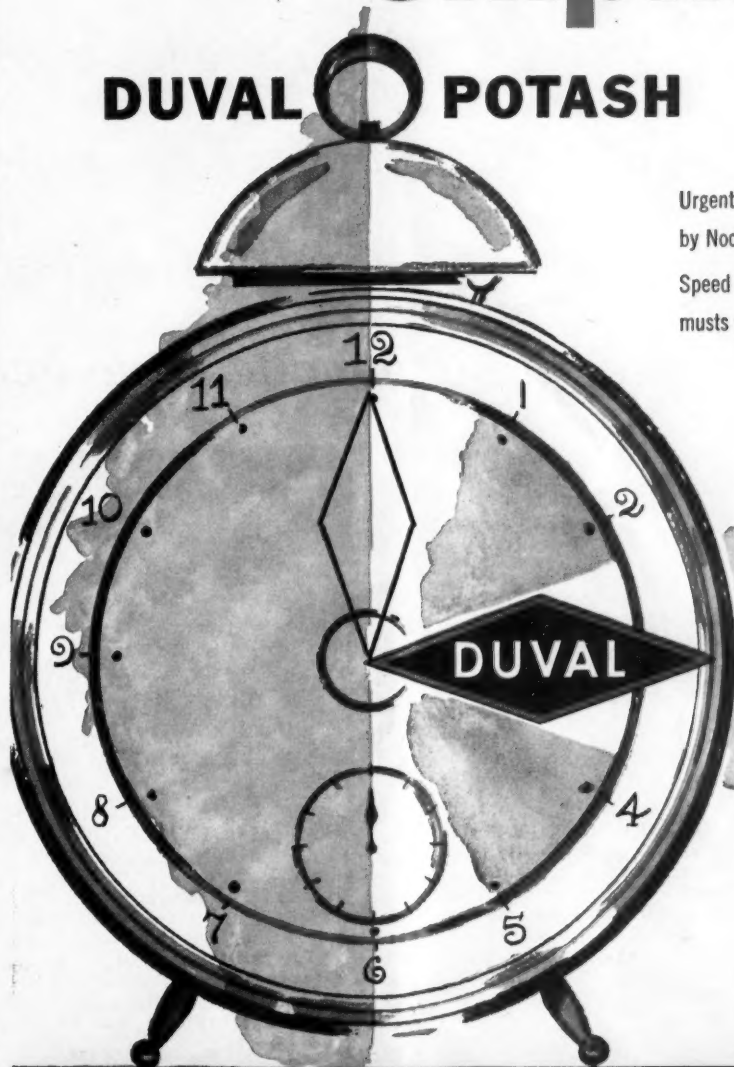
Distributors Announced For Highway Equipment Co.

CEDAR RAPIDS, IOWA—Highway Equipment Co., Cedar Rapids, announced more distributors for its line of "New Leader" equipment.

The new distributors include: Leader Equipment Co., Spokane, Wash.; Perfection Equipment Co., Inc., Oklahoma City, Okla.; Burg & Brown Implement Sales, Richmond, Ind., and Highway Motors, Inc., Harrisonburg, Va.

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New Chemical Developments Witnessed by 800 at Annual Delaware Farm Field Day

GEORGETOWN, DEL.—A series of new chemical developments were witnessed by more than 800 persons at the annual farm field day at the Georgetown Substation of the University of Delaware on Aug. 5.

Dr. George M. Worrlow, dean of the school of agriculture at the university, who spoke during the program, declared that new and better practices by Delaware's farmers are paying off, even while prices are low.

The university's scientific research, he said, plays an important part in this progress.

The farmers took bus tours to experimental plots scattered over the station, which was interrupted early in the afternoon by a demonstration of crop dusting by helicopter. At the experimental plots farmers saw:

New crops included a white eggplant; improved farm chemical processes, such as chemical control of weeds before their seeds sprout; new concepts, one involving an experiment from the point of view of profit per square foot of broiler house rather than profit per bird; experiments that failed, among them a plot of corn heavily fertilized with nitrogen-rich urea where the stalks give every sign of nitrogen starvation.

One of the most popular questions asked Frank Springer, agronomist, was: "What's the best weed controlling chemical for corn?" Mr. Springer said 2,4-D is still the cheapest and most practical chemical for broadleaf weed control. Of the eight other chemicals he is testing, he said a chemical called Atrazine looks good also.

In a test of chemicals for weed control in soybeans, Mr. Springer said "Premerge" showed the best results

Rain Ruins Spray; Farmers Try Again

PARIS, TEXAS—A sudden rainstorm washed off the cotton insecticides just two days after farmers had finished applying a record-breaking amount of chemicals.

Within a short time afterwards, however, 20 planes were in the air spraying and dusting the fields again. Several flying services and individual pilots came from south Texas to help out on the big project.

The main insects were boll weevils, though boll worms are also building up rapidly. Farmers decided to use planes for the work because of wet grounds and tall cotton. Entomologists say that unless the insects are controlled the rest of the year, there will be little cotton left to harvest.

FORM CORPORATION

CARRINGTON, N.D.—Klindworth Seed & Supply, Inc., has been incorporated, listing \$100,000 capitalization, by Otto Klindworth, Norman Wahlund and Magnus S. Johnson, all of Carrington.

SEEK PEPPER ROT CURE

RALEIGH, N.C.—Scientists at North Carolina State College feel they are making progress in solving one of the bell pepper farmer's biggest problems—blossom-end rot.

"We believe the disease is related to calcium deficiency," says Dr. C. H. Miller, assistant professor of vegetable crops.

"Other factors, such as soil dryness, hot weather, and relatively high concentrations of salts in the soil, tend to make the disease worse.

"We know for sure that it is not caused by a pathogen such as a fungus, bacterium or virus," he said.

Once the exact cause of the disease has been determined, then scientists will be in a position to suggest a cure.

this year, of the nine chemicals tested so far.

The helicopter demonstration was sponsored by a team of E. I. du Pont de Nemours & Co., Inc. sales engineers from the agricultural chemicals department. The pilot was Dr. Carol M. Voss, an entomologist and president of Agrotors, Inc. of Gettysburg.

The chemical dusted was Dybar, a new pelleted non-selective weed killer, designed by DuPont to clear growth from ditches for mosquito control, keep highway shoulders free, and clean up utility rights of way.

An impressive plot shown to the visitors was control of nutgrass in potatoes by "Eptam." Horticulturist E. M. Rahn said the roots of the weed grow right through potatoes which makes control important.

Research Planning Group Elects New President

LOGAN, UTAH—University of Nevada agronomist Dr. Joseph H. Robertson has been elected president of the newly-formed Western Range Research Planning Conference at a meeting of 12 Intermountain states here.

One purpose of the new planning conference is to develop programs for fertilization of ranges and removal of undesirable plants.

700,000 Idaho Acres Infested with Medusa-Head

BOISE, IDAHO—Over 700,000 acres of land in Idaho are infested with medusa-head rye, the Idaho Noxious Weed Control Assn. was told in a recent convention here.

The medusa-head, labeled Idaho's most difficult weed to control, is most

heavily concentrated in Gem, Payette and Washington counties.

Paul Torell, University of Idaho agronomist stationed at Twin Falls, reported that medusa-head crowds out other vegetation and spreads rapidly on cheatgrass ranges. It also causes damage to mouths of grazing livestock.

Mr. Torell, in a report prepared for the association's convention, said that chemical control will stop the spread temporarily but treatment lasts only a short time.

PROPOSE NEW PLANT

MERIDIAN, MISS.—Dixie Fertilizer Co. has proposed construction of a plant at Meridian adjoining the city's new sewerage disposal plant which would use activated sludge from the disposal plant as a primary supply for manufacture of an organic base fertilizer to be manufactured there. This would be the first plant of this type to be built in Mississippi.

Take those big preseason savings on LION® E-2 now!

*It's the one and only ammonium nitrate
you can safely store for big spring markup
and extra profit! Lion E-2 is free-flowing
when you get it...free-flowing when you
sell it...no matter how long you store it!*



NO CAKING... GUARANTEED. Lion E-2 prills won't break down, crumble or cake under the heavy weight of stacking in shipment or storage. E-2 is free of dust and fines... not affected by extreme temperature changes or humidity. You and your customers can buy now, store safely until used. Guaranteed storage-stable.



TAKES LESS STORAGE SPACE. Lion E-2 has the greatest density of any ammonium nitrate on the market. It's less bulky... takes 20% to 25% less storage space. It saves you needed floor area. It isn't necessary to spread out E-2 in smaller stacks like old style forms of ammonium nitrate. With E-2 you stack higher utilizing all available storage area, without fear of caking.



EASY-TO-HANDLE BAGS. Lion E-2 multiwall bags are specially coated with Monsanto Syton®—the antislip agent that lets you stack Lion E-2 higher... move it faster... handle it easier. It helps you save time, work and space... reduces material losses through breakage due to slippage.

NEW LION E-2

Always stores...

Always pours



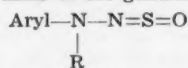
MONSANTO CHEMICAL CO.
Inorganic Chemicals Division
St. Louis 66, Missouri

Monsanto

PATENTS and TRADEMARKS

2,898,265

Method of Combating Pests. Patent issued Aug. 4, 1959, to Richard Wegler, Leverkusen, and Gunther Unterstenhofer, Opladen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany. A method of combating insects which comprises applying to the insect an effective amount of an N-thionyl-N'-arylhydrazine of the general formula



wherein the aryl radical is a member

selected from the group consisting of a phenyl radical, a naphthyl radical, phenylthiazolyl radical and phenylimidazolyl radical, and R stands for a member selected from the group consisting of hydrogen, lower alkyl and phenyl.

2,898,266

Control of Plant Diseases of Ascomycetes Origin Employing N-Phenyl-Di-Chloro-Maleimide. Patent issued Aug. 4, 1959, to Robert L. Gates, Medina, N. Y., assignor to Food Machinery and Chemical Corp., San Jose, Cal. The method of controlling

the spread of diseases of Ascomycetes origin in plants which comprises applying N-phenyldichloromaleimide in toxic concentration to the area of the plant subject to the disease.

2,898,266

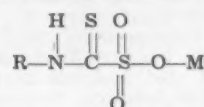
Herbicide for Dichondra Lawns. Patent issued Aug. 4, 1959, to Charles A. Monogian, Whittier, Cal., assignor to Downey Fertilizer Co., Downey, Cal. A method for killing plant growth of the Oxalis family in a Dichondra lawn which comprises evenly distributing 3-(p-chlorophenyl)-1,1-dimethylurea over the lawn in an amount of from about 4.4 grams to 17.6 grams of the compound per 100 sq. ft. area of the lawn.

2,898,261

Method and Composition for Destroying Nematodes. Patent issued Aug. 4, 1959, to Charles R. Youngson, Long Beach, Cal., assignor to the Dow Chemical Co., Midland, Mich. A method of treating nematode infested

CROPLIFE, Aug. 17, 1959—7

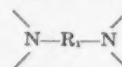
soil to improve its plant growing properties which comprises impregnating said soil with a nematocidal concentration of an active agent effective to improve said properties, the active agent being a sulfonate compound having the formula



wherein R represents a member of the group consisting of lower alkyl, allyl and propargyl, and M represents a member of the group consisting of sodium and potassium.

2,898,262

Compositions and Methods. Patent issued Aug. 4, 1959, to Harry F. Dietz, deceased, late of Chadds Ford, Pa., by Dorothy H. Dietz, executrix, Chadds Ford, Pa., assignor to E. I. du Pont de Nemours & Co., Wilmington, Del. A fungicidal composition comprising a fungicidal adjuvant, and an alkyl mercury salt of polyamine acetic acid wherein the polyamine group is represented by the structure



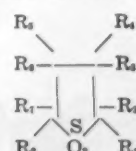
in which R₁ is selected from the group consisting of divalent saturated hydrocarbon groups of from 2 through 12 carbon atoms and divalent saturated aliphatic chains consisting of from 4 through 12 carbon atoms and from one through 5 nitrogen atoms with each nitrogen atom dividing the chain into alkylene groups of not less than 2 carbon atoms each; from 1 through 4 valences of the polyamine nitrogens being satisfied by an alkyl mercury acetate group of the type —CR₂R₃COOHgR₄, in which R₂ and R₃ are selected from the group consisting of hydrogen and alkyl groups of less than 7 carbon atoms, and R₄ is an alkyl group of less than 7 carbon atoms; and the remainder of the valences of the polyamine nitrogens being satisfied by radicals selected from the group consisting of hydrogen, alkyl groups of less than 7 carbon atoms, hydroxyalkyl groups of less than 7 carbon atoms and —CR₂R₃COOY in which R₂ and R₃ have the significance set forth above and Y is selected from the group consisting of hydrogen, alkali metal cations, ammonium or substituted amine.

2,898,263

Pesticidal Petroleum Composition and Use Thereof. Patent issued Aug. 4, 1959, to Franklin C. Nelson, Roselle, N. J., and George W. Fiero, Port Chester, N. Y., assignors to Esso Research and Engineering Co. A process of killing insects which comprises applying to such insects an insecticide consisting of an aromatic sulfur dioxide extract of a virgin distillate of a Tomball crude oil, said extract having a boiling range of about 460 to 535° F., and a total aromatics content of 85 to 95 volume percent.

2,898,205

Method of Killing Plants. Patent issued Aug. 4, 1959, to William J. Pyne, Painesville, and Henry Bluestone, Cleveland Heights, Ohio, assignors to Diamond Alkali Co., Cleveland, Ohio. The method of regulating plant growth which includes the step of contacting a plant with a composition containing a phytotoxic amount of a substance of the formula:



wherein R₁, R₂, R₃, R₄, R₅, R₆, R₇ and R₈ are selected from the group consisting of hydrogen, hydroxy, lower alkyl, aryl, lower alkoxy and halogen radicals.

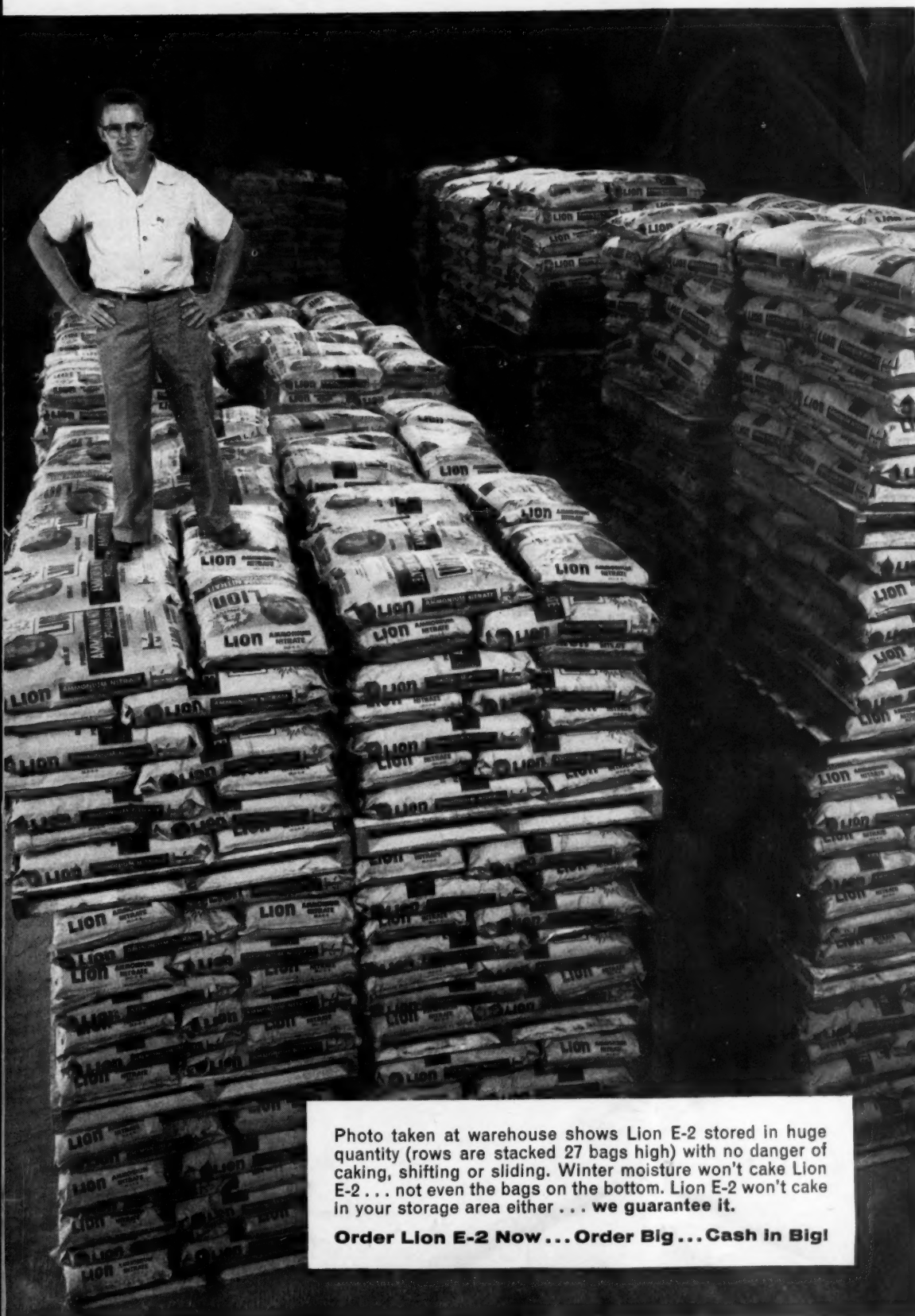


Photo taken at warehouse shows Lion E-2 stored in huge quantity (rows are stacked 27 bags high) with no danger of caking, shifting or sliding. Winter moisture won't cake Lion E-2 . . . not even the bags on the bottom. Lion E-2 won't cake in your storage area either . . . we guarantee it.

Order Lion E-2 Now . . . Order Big . . . Cash in Big!

California Chemical Employment Holds Steady

SAN FRANCISCO—Employment in chemical manufacturing industries in California held steady between May and June at an estimated 38,600 wage and salary workers, reports Maurice I. Gershenson, chief of the division of labor statistics and research of the California State Department of Industrial Relations.

The figure, a high for the year, represents a gain of some 1,200 workers over the previous June, when there had been a slump.

Factory workers in all kinds of chemical manufacturing firms, increased their average weekly earnings during June to \$106.50 from \$104.65 in May, and \$101.43 the previous June. This figure reflects a higher average hourly earnings rate combined with a slightly longer average work week. The hourly earnings for the three months respectively were estimated at \$2.56 for June,

\$2.54 for May, and \$2.45 last year.

Average length of work week was 41.6 hours, 41.2, and 41.4.

More specifically in the agricultural chemicals division of the industry, there were some 2,700 wage and salary workers in 112 firms in the state for the period from Oct. 1 to Dec. 31 of 1958, the latest figures available. Changes in classifications prevent comparison with the same period in 1957, but the figure represents a drop from 3,100 employed in the April through June period last year.

The State Department of Employment, which reports these figures, found that 42 agricultural manufacturing firms were located in the Los Angeles area employing between 900 and 1,000 persons during the final quarter of last year, and 15 in the San Francisco Bay Area, employing about the same number. The other one-third of the state's workers were employed in 55 firms scattered elsewhere, indicating a high degree of decentralization for this type of firm.

Delaware Official Says "Kill Those Mosquitoes"

DOVER, DEL.—David P. Buckson, lt. gov. of Delaware, recently directed that mosquito spraying operations be "immediately increased as quickly and as widespread as possible, wherever needed in Delaware."

He also asked Charles D. Murphy, Jr., director of the mosquito control division of the state highway department, to prepare and publish an overall plan for the permanent control of mosquitoes, "utilizing the various recommended methods after consultation with various state and federal agencies in the field."

The lieutenant governor's action came near the close of a two and a half hour conference in Gov. Boggs' office at which top state and federal mosquito experts discussed ways to ease the plight of residents of lower Delaware who have been plagued by the salt marsh mosquito.

22 More Georgia Counties Join Fertility Program

ATHENS, GA.—Twenty-two more Georgia counties have been added to the list of those participating in an intensified soil fertility program, according to J. R. Johnson, agronomist with the Georgia agricultural extension service.

Organizational phases of the program are now underway in these counties and kick-off meetings will be launched early this fall. Work in the new counties will be patterned after that carried out in the other areas which successfully pioneered in this type of program.

Two years ago the Georgia extension workers set up as their goal an increase of \$200 million in farm income from a soil fertility program. Long range plans called for an intensified soil fertility program in each of Georgia's 159 counties in order that this goal could be attained.

Mr. Johnson states that the soil fertility programs are but a part of the total agronomy program in Georgia. Emphasis, he continues, will be placed on all phases of crop production in urging growers to reach this goal of \$200,000,000 increase in their income.

Results of similar programs first initiated in six pilot counties have been encouraging. In Colquitt County, for example, farm income in 1958 from only five crops increased \$3¼ million over the preceding year. Tonnage of plant nutrients used in this county increased by 17.5% during the same period.

REPORT

(Continued from page 1)

pared to 2,565,249 tons during those same months of 1958.

Superphosphate and other phosphatic fertilizers also racked up an increase in production. During January-February this year, the figure was 460,374 tons as compared to 432,778 during those months of last year.

Pesticides

Pesticides were also listed in the report. DDT production went up considerably, totaling 12,177 tons as compared to 10,621 in January-February, 1958. Exports of DDT in the same period of 1959 and 1958, respectively, came to 9,566 this year and 3,825 tons last year.

In addition to production statistics for pesticides, the report said some exported commodities were also on the increase. Technical organic phosphate insecticides, for instance, were shipped out in the amount of 1,736 tons in January-February this year as compared to only 224 tons last year.

Herbicides, 2,4-D and 2,4,5-T as parent acid were exported in smaller quantities in January-February this year. During those months of 1959, exports totaled 438 tons as compared to 747 tons last year. Other herbicides, however, did enjoy heavier export traffic, being 631 and 464 tons respectively.

One important commodity in export tonnage, was phosphate rock which was shipped from the U.S. in the amount of 429,411 tons during the first two months of this year. During the same two months of 1958, the figure was 285,449.

Potash exports were also important in that period, the report indicates. Exports during January-February, 1959, were 32,837 tons, compared to 20,456 tons in the same period of 1958.

Urea exports saw a tremendous upsurge during the first two months of this year, with an exported tonnage of 26,434 tons as compared to only 5,463 tons in those same months of 1958.

Coming January 1, 1960 20 Successful Farming State & Regional Editions!

20 State & Regional Editions of Successful Farming—in January 1960

Edition	States	Circulation*	B&W Pg. Rate
1	Iowa, Illinois, Indiana, Nebraska, Minnesota, Wisconsin	608,297	\$3,955
2	Illinois, Indiana	218,956	\$1,860
3	Iowa	128,670	\$1,160
4	Minnesota	116,748	\$1,050
5	Nebraska	67,646	\$ 625
6	North Dakota, South Dakota	82,225	\$ 760
7	Wisconsin	76,277	\$ 705
8	Iowa, Illinois, Indiana	347,626	\$2,780
9	Iowa, Minnesota	245,418	\$2,085
10	Iowa, Nebraska	196,316	\$1,720
11	Minnesota, Wisconsin	193,025	\$1,690
12	Minnesota, North Dakota, South Dakota	198,973	\$1,740
13	North Dakota, South Dakota, Nebraska	149,871	\$1,350
14	Illinois, Indiana, Ohio	320,412	\$2,565
15	Iowa, Minnesota, North Dakota, South Dakota, Nebraska	395,289	\$3,065
16	Iowa, Illinois, Indiana, Wisconsin, Minnesota	540,651	\$3,785
17	Illinois, Indiana, Ohio, Wisconsin, Michigan	464,985	\$3,370
18	North Dakota, South Dakota, Nebraska, Kansas	217,241	\$1,850
19	Iowa, Nebraska, Kansas, Missouri	339,268	\$2,715
20	Middle Atlantic, New England	138,385	\$1,245

*A.B.C., 12/31/58

In a pacesetting farm publishing innovation, SUCCESSFUL FARMING with the January issue will offer twenty State and Regional editions, plus the national edition—a big new opportunity for fertilizer sellers!

For the first time, fertilizer advertisers in a quality farm magazine will be able to localize copy, meet specific sales problems, match media to marketing maps!

You can put more sales messages in markets needing extra effort, intensify selling in the best segments, take account of seasonal variations, soil differences, crop and climatic factors.

In the State and Regional editions it will be feasible to list local dealers, personalize your advertisements for added sales stimulation.

And the new SF editions will have the sales power and prestige of SUCCESSFUL FARMING—influence based on 57 years of service, helping farmers earn more money; an audience whose average farm is 336 acres, and whose estimated annual cash income from farming averaged around \$10,000 for a decade and reached the all-time peak in 1958 of \$12,120!

Plan now—for the twenty-one best fertilizer sales opportunities of 1960!

Full facts, any SF office.

MEREDITH PUBLISHING COMPANY, Des Moines . . .
with offices in New York, Chicago, Detroit, Philadelphia,
Cleveland, Atlanta, San Francisco, and Los Angeles.



Wisconsin Weather Is Firm's Top Sales Tool

By AL P. NELSON
Croplife Special Writer

When farmers get together, either at a meeting, a picnic, at church or at a line fence, there is one thing they will usually discuss at some length—the weather.

Weather is as important to a farmer, perhaps more so, than most other factors on his farm. That is why he always has a weather eye skyward, wondering what sun, wind, rain, snow or hail will do to his crops, flocks and herds.

Hanley Implement Co., Sun Prairie, Wis., a firm selling farm supplies, including chemicals, sprayers, garden, lawn and farm tools, garden fertilizer, farm machinery, bulk milk tanks, farm and home appliances and garden tractors, knows that weather is important to farmers, and provides farmers with a Weather Book. This 76-page book charts the complete weather history of the Sun Prairie area from 1927 to the present year.

During long fall and winter evenings farmers can sit and peruse this book, compare temperatures, snowfall, rainfall, total moisture for the year, high and low temperatures with the current year. Studying this book can help them plant their crops weatherwise. It is a book which they will not throw away. It is kept around the farm home year after year—because Hanley Implement Co. issues yearly weather data sheets which can be added to the book to keep it up to date.

This Weather Book cost about

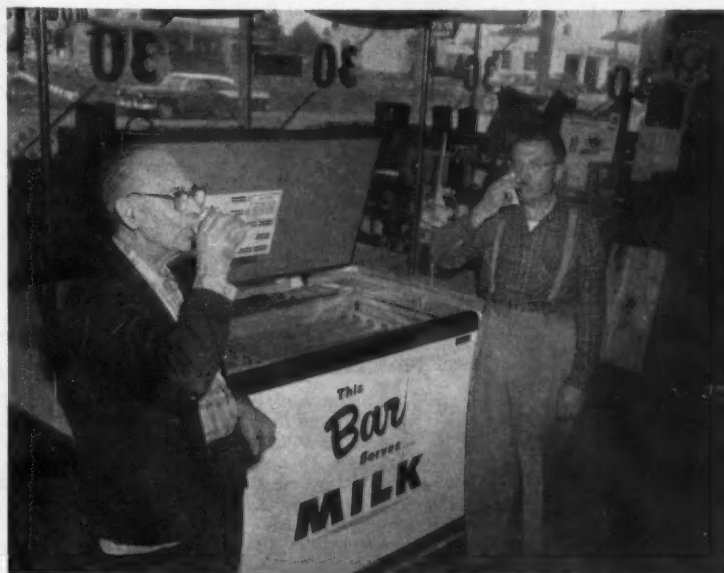
\$1,250 to produce, says Erich Lenz, secretary-manager of the firm which does an annual volume in excess of \$1,500,000. The firm printed 2,000 copies of the book in 1955 and has been adding yearly weather data sheets ever since.

To get one of these Weather Books the farmer must call in person at the Hanley Implement Co. and register. If he wants the yearly data sheets, he must also call for these. He is usually willing to do this, for the average farmer wants to keep his Weather Book up to date.

"This Weather Book has been one of our best advertising features," says Mr. Lenz, "for it has established a reputation for us in the weather field, and won many new customers for us. I would think that many other farm chemical and farm dealers could use a book like this in their areas."

It took a great deal of work to prepare the weather data for Hanley's original weather book and much re-checking. Weather data was obtained from the state of Wisconsin at Madison, the federal weather station at Madison and the Army Air Force Base at Madison. This triple checking of temperature and precipitation in the Madison trading area helped make the booklet very accurate. Sun Prairie is nine miles east of Madison and thus the Madison weather data applies to the trade area of the Sun Prairie firm.

Weather station officials in the area say that the Hanley weather book was the first of its kind they had heard of and agree that it can be



A MILK BAR is a very popular spot at Hanley Implement Co. in Sun Prairie, Wis. Here Erich Lenz (right), secretary of the firm, drinks a quick one with a customer.

helpful to farmers in preparing their daily, weekly and monthly farm work plans.

In a foreword in the book, this copy appears:

"Dear Customer:

"Weather is a very important factor in Good Farming. We all talk about the weather, and it is an easy subject to discuss, but how many of us remember what the weather was a year ago, or 10 or 25 years ago? Since weather is such an important factor in farming, we felt it would be worthwhile to gather the weath-

er data for the last 25 years. We feel that by having this information you could to some extent forecast the weather seasons, and could better adjust your farm work accordingly. They say weather repeats itself. Does it?

"You can also settle any arguments as to what the weather was on certain days in the past. If nothing else, it makes good reading.

"This weather history is compiled for you with our compliments and from the facts secured from the

(Turn to WEATHER, page 14)

Minnesota Dealer Builds Annual Fertilizer Volume with Free Soil Testing Program

A free soil test is an excellent way in which to get farmers interested in talking about a fertilizer program.

So says Orville Ingvaldson, owner of the Geneva Grain & Milling Co., Geneva, Minn. He obtains the free soil testing service from one of his fertilizer suppliers. There is no charge for the soil testing if the farmer buys fertilizer from the Geneva firm.

"It is easier to get a farmer to submit a soil sample for testing than it is to sell fertilizer to him," states

Mr. Ingvaldson. "The soil testing doesn't cost him anything, and when the test is completed, he is ready to talk over the recommendations for fertilization. He can see from the report what his soil needs, and then our fertilizer sales work is more effective."

Mr. Ingvaldson has a large bulletin board in his rebuilt mill and store, and free soil testing is advertised on that board most months of the year. The sign, plus newspaper advertising on the same subject, helps focus farmer attention on this important project.

"Thus soil testing is a valuable aid in selling fertilizer," states this dealer. "When you sell fertilizer on the basis of a reliable soil test you are not 'shooting in the dark' or 'guessing' what a customer's soil needs. You are working with scientifically tested results," he said.

"I think farmers in this area are getting more sold on soil testing every year," says Mr. Ingvaldson. "We men-

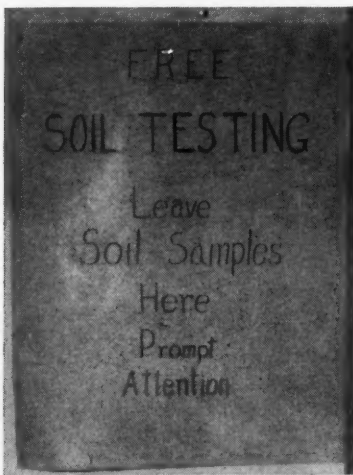
tion soil testing to our customers as often as we can. And we urge them to have soil testing done during the months when they are not so busy and when company soil test labs are not jammed with work. That aids in working out long range fertilizer programs. We like to obtain fertilizer orders far ahead."

Mr. Ingvaldson sells both dry and liquid, complete analysis fertilizer. In the liquid field, he will either haul direct to the farm or apply the fertilizer on the land. He had a spray outfit (30 ft. boom) mounted on a truck with a supply tank, and he can spray directly on the land. He also has a one row liquid fertilizer applicator.

Some farmers, he reports, do their own applying, and have storage tanks on the farm. Mr. Ingvaldson has two storage tanks on his premises—each holding 20 tons—and these enable him to have a supply of a couple of fast moving liquid fertilizers on hand at most times. If a farmer wants a custom mixed liquid fertilizer for his farm, according to his special soil needs, he can also get it quickly through Geneva Grain & Milling Co.

"Both our dry and liquid fertilizer business is growing," says Mr. Ingvaldson, "and with our increase on

Turn to SOIL TEST, page 14)



A FREE SOIL test sign (photo upper left) is displayed prominently at the Geneva Grain & Milling Co., Geneva, Minn. According to the owner the sign helps build fertilizer sales. The lower photo shows one of the spray units utilized by the firm.

WHAT'S NEW

IN PRODUCTS • SERVICES • LITERATURE

To obtain more information about items mentioned in this department simply: (1) Clip out the entire coupon in the lower corner of this page. (2) Circle the numbers of the items of which you want more information. Fill in the name and address portions. (3) Fold the coupon double with the return address portion on the outside and fasten the edges with a staple, cellophane tape or glue. (4) Drop in the mail box.

No. 6943—Weed Killer Literature

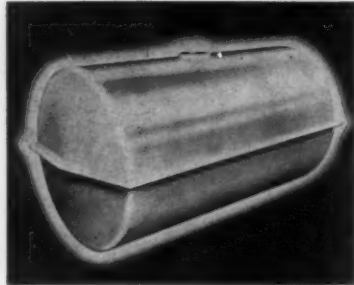
Reasor-Hill Corp. has announced the availability of literature on the firm's granular weed killer, R-H Weed Rhap-20. The literature answers many questions, the company says, frequently asked about the product including what weeds it can kill, how to use and costs. A special portion on weeds in corn is contained. For copies of the literature, check No. 6943 on the coupon and mail.

No. 6944—Auto Leasing Study

A study for executives and financial officers, recently published by the Foundation for Management Research, analyzes the advantages and disadvantages of leasing auto fleets for company salesmen in cities and over-the-road. The 24-page study includes full charts on costs involved in different fleet plans, and is based on records covering 29,264 autos. The report is titled "Advantages and Disadvantages of Auto Fleet Leasing: A Comparison of Company Ownership, Salesman Ownership and Leasing." For copies, check No. 6944 on the coupon and mail.

No. 6937—Molded Tank

A molded fiber glass tank for use in spraying or storing corrosive liquids has been announced by the Molded Fiber Glass Body Co. Designed in a cylindrical shape, the 200-gal. tank is said to resist corrosion and weathering. It is recommended for use as a spray tank for insecti-



cides and liquid fertilizers, or as a storage tank for chemicals. The tank is easy to clean, the company said, and is lightweight and impact resistant. It is 58 in. long with a 32 in. diameter. Available in a selection of colors, the tank is translucent so that the liquid is always visible. For more information check No. 6937 on the coupon and mail to this publication.

No. 6939—Display Units

Salesroom wall type merchandisers and gondolas have been announced by Shure Manufacturing Corp. Heavy-duty steel uprights and brackets, available in a number of sizes, are quickly adjustable to meet seasonal requirements, the company said. Wall displays can include lettered plastic valances and large perforated display panels which accommodate numerous combinations of displays. Planning and layout service is available from Shure Manufacturing Corp. to assist in the best utilization of available space. For details check No. 6939 on the coupon and mail.

No. 6936—Sales Booklet

A brochure entitled "14 Tested Ways to Increase Sales and Cut Sales Cost," has been announced by Perrygraf Corp. Seventy-six pictures and 122 case histories are used to show "how to pep up the whole sales program by using slide-charts to put product facts at the fingertips," company literature said. One slide-chart, distributed by Phillips Petroleum, enables one to see instantly what fertilizer is needed to replace elements removed from the soil by any one of 30 crops. Other slide-charts show egg cost calculations, feed require-



ments, how to check rate of fertilizer application, equipment and floor space necessary for different numbers of chickens, dosage for disease prevention and many other farm problems. The booklet and other materials are available free by checking No. 6936 on the coupon and mailing.

No. 6938—Fly Killer

Camp Chemical Co. announced a new Diazinon Fly Bait Killer. In powder form, the product attracts flies and kills them, the company said. It is especially designed for outdoor use. The company guarantees a 98% fly reduction each day of use. The package is ready for use merely by sprinkling on the ground or horizontal surfaces. The packages come 12 to the case. For information on this fly killer check No. 6938 on the coupon and mail to this publication.

No. 6940—Spray Nozzle, Control Valve

Spraying Systems Co. announces the DirectoJet, designed with a control valve that provides spray to either the left or right side of the tractor, or to both sides at one time as well as off-and-on control. The entire sequence of operations is controlled by the operator without leaving the tractor seat, the company said. Because the spray can be shut off to either right or left, the spray can be set in the down-wind direction on windy days. This control feature is also of advantage when spraying near fence rows or buildings. The unit is easily mounted on a tractor, with the control handle positioned convenient to the operator, company literature explained. Five different



capacity ranges are available. The DirectoJet may be removed and used as an auxiliary spray gun. Check No. 6940 for details.

No. 6945—Warehouse Layout Brochure

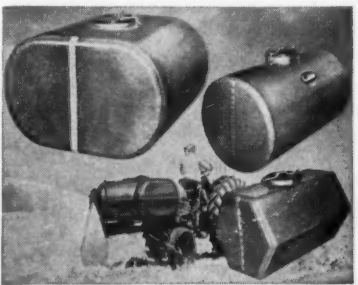
"Warehouse Layout: Narrow Aisles or Wide?" is the subject of an eight-page brochure published by the Automatic Transportation Co. This brochure is designed as a guide for the best type of warehouse for individual installations. Four pages of Automatic equipment in operation illustrate certain ways to solve the narrow-wide aisle problem. For copies of the brochure, check No. 6945 on the coupon and mail.

No. 6946—Liquid Grain Fumigant

Frontier Chemical Co., division of Vulcan Materials Co., announced the development of a liquid grain fumigant under the trademark "Clorofume." The product, which gets its name from its chief ingredient, chloroform, is the result of four years of research and testing, the company said. Company literature listed the following advantages: High insect toxicity; greater grain penetrating power; savings of 20-30% per bushel of protected grain; safe handling, and no health hazard to human life when used with reasonable care. It is composed of three 100% active ingredients—chloroform, carbon bisulfide and ethylene dibromide. For further information about the product, check No. 6946 on the coupon and drop in the mailbox.

No. 6935—Sprayer Tanks

Hanson Equipment Co. is offering a complete list of Fiberglass sprayer tanks ranging in size from 50 to 500 gal. and in a variety of shapes to suit individual needs. According to the company, the tanks are impervious to farm chemicals and rust, and will withstand sharp blows without breaking or denting. Translucent tank walls allow the user to view the



liquid level at all times. A sight gauge for reference is on either end. Complete information about the tanks can be obtained by checking No. 6935 on the coupon and mailing to this publication.

No. 6941—Feed, Fertilizer Body

A combination bulk feed and fertilizer body called the "Feedilizer," has been introduced by Simonsen Manufacturing Co. The 3,800 lb., all-steel body can give the dealer an extra fertilizer spreader during the

Send me information on the items marked:

- | | |
|---|---|
| <input type="checkbox"/> No. 6935—Sprayer Tanks | <input type="checkbox"/> No. 6941—Feed, Fertilizer Body |
| <input type="checkbox"/> No. 6936—Sales Booklet | <input type="checkbox"/> No. 6942—Cotton Pest Control Leaflet |
| <input type="checkbox"/> No. 6937—Molded Tank | <input type="checkbox"/> No. 6943—Weed Killer |
| <input type="checkbox"/> No. 6938—Fly Killer | <input type="checkbox"/> No. 6944—Auto Leasing Study |
| <input type="checkbox"/> No. 6939—Display Units | <input type="checkbox"/> No. 6945—Warehouse Layout Brochure |
| <input type="checkbox"/> No. 6940—Spray Nozzle, Control Valve | <input type="checkbox"/> No. 6946—Liquid Grain Fumigant |

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COMPANY

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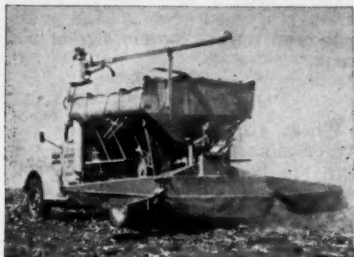
Croplife

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Reader Service Dept.

Minneapolis 40, Minn.

rush season and it also can allow the dealer to expand his operation from the relatively short fertilizer spreading season to a full 12 months by adding bulk feed delivery, the company said. The Feedilizer is two complete bodies in one, with a total capacity of 261 cu. ft. The two compartments will hold 8½ tons of fertilizer or 5.2 tons of feed. This allows splitting a



load into two separate orders of fertilizer at a time or separate feed orders. One compartment can be filled with fertilizer and the other with feed. The unit has all the features of a bulk feed body and a spreader. Its feed delivery auger will reach 21 ft. bins, will turn 360° and will deliver feed at the rate of 800 lb. a minute. The fertilizer spreader unit is designed to spread accurately down to 75 lb. an acre. Because its apron is run by a wheel drive, the truck can be operated in all gears or with a two-speed axle without affecting the rate of fertilizer spread. Stainless steel is used at all critical points to reduce corrosion. For more information, check No. 6941 on the coupon and mail.

No. 6942—Cotton Pest Control Leaflet

Recommended procedures for the control of cotton pests are outlined in a new leaflet published by Stauffer Chemical Co. The leaflet describes the formulations of Trithion available, dosage recommendations and application methods for the control of two spotted mite, cinnabar mite, tropical mite, cotton aphid, leafworm and leaf perforator. Copies are available without charge by checking No. 6942 on the coupon and mailing to this publication.

USDA Report on Stored Tobacco Insect Control

WASHINGTON—Pyrethrum mists and aerosols are effective in killing tobacco moths in tobacco warehouses, but they only partially control cigarette beetles, according to a research report issued by the U.S. Department of Agriculture.

Researchers for USDA's Agricultural Marketing Service found that neither pyrethrum mists nor aerosols are as effective as fumigation, but they must be used in loosely constructed warehouses where fumigation is not effective.

In treating stored tobacco, only certain types of oil should be used as diluents, so that there will be no odor or greasy deposits, the researchers warned.

Weekly applications will control the tobacco moth, but daily applications may be necessary to obtain a degree of cigarette beetle control. Many of the cigarette beetles stay inside the tobacco, making it difficult to reach them with insecticides, the researchers said.

A copy of the report, "Pyrethrum Mists and Aerosols for Control of Insects in Tobacco Warehouses," Marketing Research Report No. 334, may be obtained from the Office of Information, U.S. Department of Agriculture, Washington 25, D.C.

SOYBEAN FACT SHEET

COLLEGE STATION, S.D.—Many questions on soybean culture are answered in a new South Dakota State College Extension Service fact sheet entitled, "Growing Soybeans in South Dakota."

Texas Farmers Progress In Bindweed Battle

HALE CENTER, TEXAS—Though field bindweeds are in full bloom in Hale County, farmers are at last making some headway in controlling them. This has largely been through the co-operative efforts of the Hale County Noxious Weed Control District, the county commissioners, the state highway department and two railroads, the Santa Fe and the F. W. & D.

The commissioners court and railroad companies pay for the chemicals used along their right-of-ways. The Texas Highway Department treats the bindweed upon request of the farmer through the weed district office.

This year's activities have been stepped up considerably over previous years. During the first six months of 1959, the district's equipment was used on 123 farms, while 80 miles of

county road rights were sprayed. Other treated areas were along the state highways and railroads.

Bindweed came into the High Plains area many years ago, but went almost unnoticed for a long time. Only within the last three or four years have farmers realized its danger and started a control program to eradicate it.

To Reclaim Land

CANTON, MISS.—Approval has been granted here in Chancery Court for the temporary organization of the Bear and Tilda Bogue Creek Water Management District. Approval by the court has opened the way for a projected plan which promises the reclamation of some 40,000 acres of Madison County land for row crops.

Three court appointed temporary commissioners will seek a survey by the Soil Conservation Service of the Bear Creek area to determine the economic feasibility of the plan.

New Arkansas Firm

LITTLE ROCK, ARK.—The Farmers Elevator-Warehouse, Inc., Newport, has filed articles of incorporation with the secretary of state's office to operate a feed, seed and fertilizer business. The company was authorized 1,000 shares of no par value stock. Incorporators were David Owen, R. Owen Burton and Wayne and Ruth Collier, all of Newport. Fred M. Pickens of Newport was named agent.

FORMS CORPORATION

LITTLE ROCK, ARK.—Nichols Farm & Home Center, Inc., Des Arc, Ark., has filed articles of incorporation with Arkansas secretary of state to operate a "farm supply and general farm merchandise business." The firm was authorized 1,000 shares of \$100 stock. Incorporators were Henry, S. R. and Henry Lee Nichols, all of Des Arc. S. R. Nichols, Des Arc, was named as agent.



Groves of specialty crops like citrus and tobacco



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FARM SERVICE DATA

EXTENSION SERVICE REPORTS

Farmers in northeastern Ohio, long known as the state's timothy belt, can put brome-grass to work on their farms just as profitably as they can timothy.

Cows do as well on one of these forages as on the other, report R. R. Davis and A. D. Pratt of the Ohio Agricultural Experiment Station. Comparisons were made with the high-producing Holstein herd at the Trumbull County Farm, one of the experiment station's nine outlying farms.

The research points out that farmers can profit by using both timothy-legume and brome-grass-legume mixtures in order to stretch the period for making high quality, first-cut hay.

Although the brome-grass-legume hay and silage fed in the winter usually contained more protein and carotene than the timothy-legume feed, both sets of cows performed equally well. The researchers say that enough protein and carotene are apparently present in timothy-legume feed to keep up milk production.

Although timothy outyielded brome-grass the first two years of the experiments, brome-grass surpassed timothy in the next three years. This is because brome-grass is slow to form a high-producing sod. Slow starter though it is, brome-grass will do better by the farmer than timothy in meadows to remain three years or more.

★

Peach trees growing on sod require twice the normal nitrogen application.

Heavy applications of nitrogen delay maturing of apples.

Fruit trees on manganese-toxic soils accumulate 50 times the needed amount.

These facts have been revealed by recent fertilizer studies, reports John Titus, head of the University of Illinois pomology division. The studies were conducted at Urbana, at the Horticultural Experiment Station in Carbondale and in orchards of cooperating commercial growers.

Results of these studies will aid not only commercial fruit producers, but also the farm family that has only a few apple or peach trees, Mr. Titus points out.

For example, the first study determined the nitrogen needed by peach trees growing on sod in comparison with that required by trees on clean-cultivated land.

Peach trees on sod needed twice the normal nitrogen application in order to get the minimum amount they needed for good growth. On the other hand, peach trees on

clean-cultivated land required merely a normal application.

The reason for the difference is that trees on sod must compete with the sod for water and mineral elements.

The effect of hay mulches on peach tree nitrogen requirement has also been studied. Results show that mulches reduce this requirement. Why? Mulching reduces competition for minerals and water. Mulched trees can therefore grow nearly as vigorously as trees under clean-cultivation.

Results of this study suggest the need for growers and farmers to increase nitrogen applications to peach trees growing on sod. While clean cultivation may increase peach tree growth, sound soil conservation methods must be practiced to minimize erosion losses.

A second recent study was made to determine the effects of nitrogen applications on golden delicious apples. Results show that heavy applications of this element delay maturing of apples.

Preliminary studies have shown that varying nitrogen levels affect the tree's uptake of calcium, manganese, potassium and phosphorus. Time of year, crop load and amount of pruning also affect uptake. More studies are under way to further investigate these findings.

★

Alfalfa, widely grown forage crop on New Jersey dairy and livestock farms, thrives when it is properly fed with potash, goes into a decline when it gets none.

Farmers and farm servicemen saw dramatic examples of alfalfa's potash needs during a tour of research plots at Crops and Livestock Field Day at the Agricultural Experiment Station, Rutgers University.

Dr. John L. Gerwig, extension farm crops specialist at the State University, showed one plot that has received no potash since 1952. It yielded alfalfa last year at the rate of a mere .06 ton an acre. Another plot that received an abundance of potash, some phosphorus and no nitrogen is yielding more than 5 tons an acre in its seventh year.

The demonstration is designed to answer farmers' complaint that alfalfa "goes out" after a few years. The answer, said Dr. Gerwig, is "applying fertilizer with a shovel rather than a spoon."

Visitors also saw results of work to develop new strains of corn, orchardgrass and other crops.

Demonstration plots also gave proof that chemicals are helping the farmer win the battle against weeds. Dr. William F. Meggitt, crops researcher, showed weed control in corn with a relatively new chemical, Simazine, and explained his work in testing the possible effects of the chemical on subsequent crops grown in the same soil.

Other researchers outlined work to test the digestibility of forages and ways of detecting dwarfism in beef cattle.

★

Keith Wallace, extension weed specialist at South Dakota State College, says cocklebur, an annual costly

weed, can be sprayed effectively now in corn with a dose of a half pound of 2,4-D amine.

If not controlled, an average infestation of cockleburs can: (1) cut corn yields by 9 bu. an acre; (2) poison livestock if in the 2-leaf stage; and (3) cost 40 to 80¢ dockage per wool fleece from burs in the clips if sheep are pastured in infested corn fields this fall.

Mr. Wallace said spraying—which will also kill other broad-leaved weeds such as sunflowers, ragweeds and pigweeds—should be done as soon as possible.

★

Proper plant food balance is the main foundation on which to build a good, permanent soil fertility program, according to University of Illinois agronomists.

Other essential "building blocks" are good soil tilth and favorable conditions for the growth of soil organisms and for control of erosion, these agronomists point out in a statement summarized by the Midwest division of the National Plant Food Institute.

Because of the importance of plant food balance, soil tests for lime, phosphate and potash can give the farmer valuable information in guiding him toward the proper use of fertilizer, the agronomists say.

"These tests can make money for the farmer by showing him what fertilizer treatments he needs to apply to his soil in order to produce profitable yields," the agronomists report. "The tests can also save him money by showing him where his soil does not need treatments."

First step in getting soil tests is to do a good job of taking soil samples from the field, the agronomists say.

"Tests can be no better than the way the samples are collected," they point out. "Complete directions for collecting soil samples can be obtained

from county farm advisers, vocational agriculture instructors, commercial testing laboratories and the agronomy department of the state university.

"As a result of Illinois' well-developed soil testing services, farmers of the state had 662,000 samples tested in 1957—the largest number tested in any state. Despite this impressive record, the soils on many farms still need testing. And most soils need retesting every five or six years."

★

Wheat growing costs can be cut 20¢ or more per bu. when yields per acre are boosted through good soil management methods, according to a statement by Kansas State University agronomists.

"It is estimated that 24-bu.-per-acre wheat costs \$1.20 per bu. to produce, whereas 38-bu. wheat costs about \$1 per bu. to grow," says the statement.

"Most farmers would haul their wheat a long way to get that extra 20¢ per bu. Yet they can get that higher income right on their own farms by using improved management methods."

Dr. Floyd W. Smith, of the Kansas State University agronomy staff, points out that wheat responds more profitably to fertilizer use than does virtually any other crop. Research indicates that a return of \$3 or more can be expected for each dollar invested in nitrogen fertilizer for wheat.

Dr. Smith reports unusual response to plant food by wheat this year, and predicts that 1960 should be as good a year for fertilizer use on wheat as is the present season.

The National Plant Food Institute points out that as farmers increase their crop producing efficiency through the use of fertilizer, they can reduce the acreage devoted to crops and still boost their profits.



By Emmet J. Hoffman
Croplife Marketing Editor

OVER THE COUNTER

According to Dr. Robert C. Kramer, agricultural economist, Michigan State University, owner-operated, family-size farms are fully capable of continuing to produce an important part of our agricultural output economically and in competition with large-scale enterprises, whether integrated or not. They must keep alert and adapt to constant changes.

"My research leads me to believe that as of this date only a small percentage of the red meat produced in the U.S. comes from integrated (contract farming) programs. However, I believe we are now on the threshold of a tidal wave of contract production.

"Farmers have shown that they will surrender a little of their freedom for a little more security. They have shown they will integrate with non-farm firms. Even though integration may account for a small percentage of the total output of a commodity, the integrated part may set the pace for the rest of the industry," he said.

Dealer Follows Up Purchases

One dealer writes a postcard to customers who have made sizable garden supply purchases. The card inquires how the merchandise is performing and adds suggestions that will aid the customer in getting further good results from his purchase.

The old saw, "the customer is always right," may not be exactly true but without exception the dealer should heed the advice, "the customer is always boss."

More Socialism

James A. McConnell, Mansfield, Pa., formerly a G.L.F. Mills, Inc., executive, and government official and advisor, says, "I think we are headed towards more socialism, that is, toward more government ownership, plus more government control in the field of business policies. The field in which management can move freely will be continually narrowed. Personally, I don't think this is good, but I believe it's going to happen.

"Business management has a responsibility for the kind of government the U.S. will have in the next decade. I call to mind the precept of a successful businessman, the father of one of my good friends. The sense of it is, when you work for your own business for three days, prepare to spend two days, if necessary, to maintain the kind of government that permits you to operate a legitimate business."

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SCHOENFELD AND MCGILLICUDDY



OSCAR & PAT

Oscar Schoenfeld was busy with his discount work when the tall, hatless man wearing glasses and clad in grey slacks and sports shirt came into the farm supply store. He was clean shaven and had piercing blue eyes.

"Is Mr. McGillicuddy in?" he asked Tillie Mason who sat at her desk typing envelopes for monthly statements.

"No. He left for a field call about a half hour ago," Tillie said, "but his partner, Mr. Schoenfeld, is over there."

The man looked at Oscar's railed in office, and then walked in that direction. "I have a list of farm chemicals here that I want," he said. "Can you take care of me? I want to read all the labels on the cans first."

Oscar swung around in his swivel chair and glanced critically at the visitor. He looked like one of those gentleman farmers, a breed which Oscar didn't like. They always came into the store armed with the latest information on farm chemicals, often asked for products which the store didn't stock as yet.

"Ach," Oscar said, "they are all displayed over there. If you want to read labels, go ahead. Then when you get ready to buy, I will take care of the order."

The man blinked, looked at Oscar queerly. "Oh, all right," he said. He went to the islands and began looking over the products, but it was easy to see that he was a little miffed by Oscar's cold treatment.

Oscar paid no attention. He swung back to his cost and discount work and was soon absorbed in it.

"Excuse me," Oscar heard the man say a few minutes later. "I can't find the diazinon products. Where are they?"

There was a frown on Oscar's face. "Ach, they are right over there," he said petulantly. That was the trouble with these eggheads, he thought, smart in some ways and dumb in others. He bet that fellow probably couldn't sharpen a pencil with a knife—he had been so used to using a pencil sharpener.

The man stared at Oscar, as though he had never quite seen anyone like him. At this moment, red headed Red Cochran came in from the warehouse.

"He will take care of you," Oscar said sharply. "Red, wait on him, will you? I haf work to do."

Red Cochran smiled at the man and went with him to the islands and helped him. A little later, Red came up and said to Oscar, "This man is from the state department of entomology. He picked out a lot of stuff they are going to use on the Schneider farm for demonstration spraying. He wants a discount."

"Discount!" Oscar almost shouted. "Nein. It will take us 60 days to get our money from the state. They are slow just like the county, ach."

"Mr. McGillicuddy said we would get the usual discounts," said the man coldly. "Isn't he around?"

"Nein," Oscar said sharply. "He is maybe out loafin' around town. He never works."

The state man blinked. "Well, he impressed me as being a very hard working, conscientious fellow." He coughed. "I'll leave this list here and phone McGillicuddy later. But we

can't wait too long. If there is too much of a delay we'll have to buy elsewhere."

Oscar shrugged and went back to his discounts. "Always they want to buy cheaper," he said to Cochran.

"But we give discounts to county and state crews," Cochran said.

"Pat does. I don't. Ach, I am not in favor of it."

When Pat McGillicuddy came back from a field trip, Red Cochran accosted him in the warehouse, and related the story of Oscar's treatment of the state man.

A glint in his eyes, Pat strode into the farm supply store. "My heavens, Oscar!" he said. "You have insulted E. P. Paxton, the state entomologist. That was he in here picking out sprays for that Schneider test farm."

"I don't care who he was," Oscar said. "He is one of those label readers. He wants too much service. Ach, I am too busy for that. And he wants discounts."

"The state and the county get discounts!" Pat said sarcastically. "I worked like a dog trying to get this order from Paxton. Do you know what it means? It means that all the farmers attending the demonstrations

will know where the chemicals came from. We'll have first chance at their chemical business, I hope. Now you may have gummed up the works. My heavens, to think someone in this organization was as rude to Paxton as you have been."

"I toldt him the truth," Oscar snapped. "I don't lie. I say what I think."

"I believe that!" Pat growled. "Gosh, I'll call him if he doesn't phone me in half an hour. Look at this newspaper clipping. It tells all about this Schneider farm spray deal. They are using a barn fogger to protect the milk cows from mosquitoes and blood sucking flies. Paxton figures it will cost a farmer 70¢ a summer season for such a spray which will combat summer slump production. He is spraying livestock sheds with diazinon to control flies. He is spraying alfalfa with methoxychlor

(Turn to OSCAR & PAT, page 14)

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WEATHER

(Continued from page 9)

U.S. Department of Commerce weather bureau."

The funds for issuing the weather booklet came from the company's advertising budget. The firm spends about \$22,000 annually for advertising, as follows:

Radio	\$11,000
Television	5,000
Newspaper	4,000
Miscellaneous	2,000

Radio advertising includes music and news on WIBA, Madison; music and news on WKOW; Old Timers Music program on WIBU, Poynette, and news and music on WTTM, Watertown, Wis.

Television programs include sponsorship of Grand Ol' Opry on WMTV, Madison, with two other sponsors each week, and Sunday night news and weather on WKOW, Madison, Wis.

A farmer came to the Hanley store last year from 100 miles away. He said he had listened to the Old Timers program, Poynette, Wis. for years and now he wanted to buy something he heard advertised, even if the Hanley store was many miles from his home.

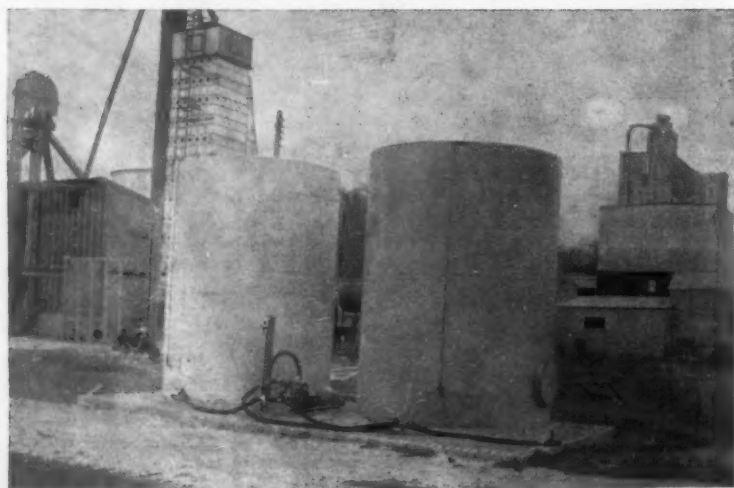
In addition to its radio, television and newspaper advertising the Hanley firm also sends mimeographed bulletins periodically to customers and prospects in the trade area. Mr. Lenz and Arthur Hanley, president of the firm, say that this bulletin produces very fine results.

"We have found that it pays to advertise consistently," states Mr. Lenz. "Our three salesmen seldom call on any prospects who at one time or another have not heard our radio advertising, seen our TV programs or read our newspaper ads. This helps greatly in selling because it paves the way for our salesmen and acquaints the prospects with much of the merchandise we have to sell."

Hanley Implement Co. maintains what is said to be the only year around Dairy Bar in a commercial establishment in Wisconsin. This bar is the company's bit toward the big drive of the American Dairy Assn. to up milk consumption.

Milk from the dairy bar is sold to people at a very small cost. While Hanley Implement Co. also has an all day long coffee service for farmers, the management frequently "buys" milk at the milk bar for customers who want it. And many farmers buy their own milk. They like the idea of a merchant setting up such a bar. And the idea certainly ties in well with the promotion of the implement firm's dairy service, amounting to more than \$300,000 annually.

While advertising and intensive



LIQUID FERTILIZER tanks are maintained at the Geneva Grain & Milling Co. They carry two types of complete analysis fertilizer. Custom blends can also be obtained for customers.

selling can raise the sales volume, the real story of profits lies in an up-to-date accounting system which reveals sales costs, states Mr. Lenz. The firm has a fine bookkeeping department, but in addition has a monthly audit by a private firm located at Whitewater, Wis. This firm also handles all tax forms.

To facilitate the dispensing of financial information about the firm to banks and sources of supplies, the company issues a complete financial statement annually. Copies are available to qualified companies or individuals.

Salesmen of the firm are paid on a generous salary and commission basis. This is one reason why sales are consistently high. It is interesting to note that 15 of the firm's employees are on an unlimited gasoline allowance every month. Mr. Hanley and Mr. Lenz believe that this privilege is appreciated by employees, and they have not found it to be abused to date.

"We want our employees to feel that we are all partners in working to increase the company's sales and profit on a mutual basis," says Mr. Lenz. "Our sales have gone up steadily, with a few fluctuations, since 1949, which would indicate that we are on the right track."

Idaho Lumbermen
Winners in Beetle Fight

BOEHLS CABIN, IDAHO—The Idaho Land Board learned on its north Idaho trip that loggers have won the race against white pine beetles to salvage a timber stand along the Little North Fork of the Clearwater River.

Logging officials for two companies assured the board that loggers are safely ahead in the 15-year contest to save the Cedar Creek white pine from beetle destruction.

George Rauch, Lewiston, vice president of Potlatch Forests, Inc., logging operations, said the Land Board decided eight years ago, after viewing beetle infestation in the area, that emergency measures should be taken to log the area before the timber was lost.

The infestation followed a severe winter in 1949 when weakened roots of trees resulted in heavy windfalls and a subsequent attack by the beetles.

Bruce Colwell, forestry and logging manager for the Coeur d'Alene division of Diamond-Gardner Corp., the other successful bidder for the area, said, "We believe we have the insect outbreak fairly well under control; despite difficulties of reaching this area by roads, we are getting it logged in time."

1957 Daily Weather History 1957

July					August					September				
Date	Low	High	Rain	Snow	Low	High	Rain	Snow		Low	High	Rain	Snow	
1	54	84	T	0	64	92	0	0		66	90	0	0	
2	65	89	0	0	68	91	.05	0		67	82	T	0	
3	65	83	.10	0	61	87	0	0		57	72	.27	0	
4	62	85	.03	0	54	74	0	0		45	67	0	0	
5	58	81	0	0	46	78	0	0		40	72	0	0	
6	61	90	0	0	47	81	0	0		49	74	0	0	
7	60	88	0	0	56	83	0	0		44	74	0	0	
8	64	86	.13	0	60	92	0	0		43	73	0	0	
9	66	82	0	0	61	84	0	0		43	74	0	0	
10	66	88	0	0	61	84	0	0		43	74	0	0	
11	66	88	0	0	61	84	0	0		43	74	0	0	
12	66	88	0	0	61	84	0	0		43	74	0	0	
13	66	88	0	0	61	84	0	0		43	74	0	0	
14	66	88	0	0	61	84	0	0		43	74	0	0	
15	66	88	0	0	61	84	0	0		43	74	0	0	
16	66	88	0	0	61	84	0	0		43	74	0	0	
17	66	88	0	0	61	84	0	0		43	74	0	0	
18	66	88	0	0	61	84	0	0		43	74	0	0	
19	27	58	0	0	26	35	.05	0.4		31	39	T	T	
20	28	62	0	0	26	35	.02	0.5		28	36	0.22	1.8	
21	39	58	T	0	21	29	T	T		27	45	0	0	
22	51	57	.23	0	19	30	0	0		30	48	0	0	
23	41	57	1.37	0	28	40	.03	T		28	47	0	0	
24	34	43	T	T	20	36	0	0		22	42	0	0	
25	24	39	0	0	21	35	T	T		29	35	0.34	2.6	
26	25	37	0	0	16	41	0	0		19	34	T	T	
27	25	50	0	0	33	50	0	0		20	39	0.09	0.3	
28	30	55	0	0	27	35	T	0		15	33	0.02	0.1	
29	35	49	0	0	15	38	.05	0.4		5	16	0	0	
30	39	52	T	0	5	23	0	0		13	20	T	T	
31	29	56	0	0	5	23	0	0		11	19	0.16	1.9	
Mean	35.4	59.4	-	-	28.2	42.4	-	-		19.3	36.5	-	-	

Hanley Implement Co., Inc.

Sun Prairie, Wis.



YEARLY WEATHER data sheets, such as the one reproduced in part of the upper photo, are given to about 2,000 Hanley Implement Co. customers. The sheets can be added to a book published by the firm, which contains weather history back to 1927. In the photo below, the neat, functional exterior of the company is shown.

SOIL TEST

(Continued from page 9)

the premises storage, we can serve customers more quickly."

During the past year Mr. Ingvaldson bought an old mixer from a farmer, and he uses it to blend and inoculate seed. The mixer will handle 500 lb. of seed at a time, and it does a good job, he reports. Inoculating seed is a job farmers do not like to do, and so many of them come here for this service.

"This service has increased our seed business quite a bit," reports Mr. Ingvaldson. "It is just another service which brings farmers here. If they buy seeds, they may also become feed customers later on. So one service helps another."

This mill and store burned in December, 1957, and Mr. Ingvaldson designed and built a new mill which was opened about a year ago. The cost was approximately \$60,000. Besides the regular mill equipment, Mr. Ingvaldson also has a bulk feed delivery truck, and a grain drier.

In the rebuilt mill, there is a combined office and farm supply store. In the store, there's a day long coffee service, which farmers like. Paper coffee cups are used which holds down on dish washing. There are chairs for customers to sit while having a coffee break. Mr. Ingvaldson often has coffee with customers, and thus gets a chance to discuss fertilizer problems in a relaxed and friendly atmosphere.

"We are working closely with the farmer to help him get a good soil test and then aid him to fertilize according to soil test recommendations," says Mr. Ingvaldson. "In that way we help the farmer to get the largest and most profitable crops."

Persistence Leads to Order

In Pittsburgh, a salesman who handles local retail accounts for one of the newspapers was continually turned down by a merchant who advertised in another publication. The salesman's resourcefulness was his persistence. For 328 days, the salesman dropped off his newspaper on the merchant's desk. On the 329th day it happened. The salesman got the business which now approximates \$25,000 a year.

OSCAR & PAT

(Continued from page 13)

to control spittle bugs, and also other projects are scheduled. Why, Oscar, we could give him these chemicals free just for the advertising we get out of the deal."

"Free!" ejaculated Oscar. "We will not give anything away free as long as I have money in this business. Free! Free! Free! That's all you know. Why don't you tell the farmers to pay! Pay! Pay! once in a while? Ach, we are not in business to give schtuff away free. We are in business to make money!"

The phone rang and Tillie answered. "It's Mr. Paxton, Pat. He wants to talk to you."

"Okay," Pat said eagerly. He turned to Oscar, "How about taking a short vacation in the rest room or the warehouse, Oscar? I want to talk privately to Paxton. I don't think you want to hear what I'm going to say."

NEW DOW OFFICE

SEATTLE—The Dow Chemical Co. has announced its Northwest sales office has occupied new quarters on the second floor of the two-story Pacific Mutual Bldg., 307 Broad St., Seattle. F. R. Armbruster is manager.

Pennsylvania Firm Finds Proper Display Of Feature Items Brings Greater Sales

Display of items such as garden tractors and power mowers, including riding mowers, pays off in greater sales.

This has been discovered by Snavelly's Farm Service, New Holland, Pa., a firm which also sells farm chemicals, irrigation equipment and farm equipment. Part of the firm's large showroom is devoted to seasonal showings of garden tractors and also to power mowers. Customers and prospects alike can hardly resist the temptation to sit on a riding lawn mower and get the "feel" of it, the management states. A number of sales have been made in this manner.

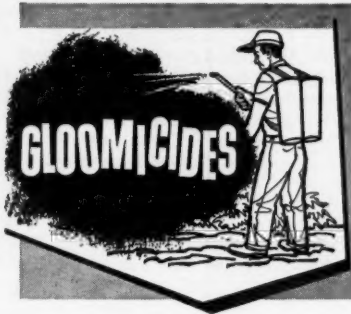
When it comes to garden tractors, the firm has an excellent ser-

vice department which can handle service on such items 12 months a year. Customers are invited to come out into the shop and watch mechanics working on tractors and power mowers, just to show them that this is "service" they can depend upon.

B. H. and A. H. Snavelly, partners in this business, find that irrigation equipment sells well in this area, where corn and tobacco are irrigated. The firm has one outside salesman who sells irrigation and other items and services. In this way most farmers in the region are contacted several times a year by the Snavelly firm. This farm service firm, too, exhibits at the Reading, Pa., county fair where it gets an opportunity to show farm items to hundreds of farmers who attend this event.



SNARELLY'S FARM SERVICE in New Holland, Pa., is a firm believer in displaying. Here is the firm's exterior with items displayed. According to B. H. and A. H. Snavelly, owners, displaying of garden tractors and power mowers and similar items pays off in big dividends. Part of the company's large showroom is devoted to seasonal showing of items.



A man finally succeeded in buying a parrot at an auction after some spirited bidding.

"I hope the bird talks," he ventured to the auctioneer.

"Talks?" exclaimed the auctioneer. "Who do you think has been bidding against you for the last fifteen minutes?"

★

Teacher left the class alone one day and was stunned to find on her return nothing but absolute silence.

"Well, children," she beamed. "This is a pleasant surprise."

And then a little boy stood up and explained:

"Miss Grew, you told us one day that if you ever came back to the classroom and found all of us sitting perfectly still and making no noise, you'd drop dead."

★

The Sunday school teacher was giving her pupils an education in the church's rituals, and when she had finished she said, "Now we'll see how much you remember. Can anyone tell me what you must do before you obtain forgiveness of sin?"

There was a long silence, and then a voice in the back row said hopefully, "Sin?"

★

The girl had just told her mother about her forthcoming engagement. Mother, however, objected. "You can't marry Edwin," she wailed. "He's twice your age, you come from different backgrounds, and you won't enjoy the same things."

"But that's not important," explained the girl. "I love Edwin for what he is—president of the bank!"

★

Women no longer bind their feet in China; the custom has been transferred to America.

★

Employer: "Did you tell that man I'd gone to South America, as I told you to, James?"

Office boy: "Yes, sir. I told him you started this morning."

Employer: "That's a good boy. And what did he say?"

Office boy: "He wanted to know when you'd be back, and I told him 'After lunch,' sir."

You'll get a better understanding of the fertilizer market from this valuable new book



Crop-Use Patterns of Fertilizer in the United States

by

J. R. ADAMS L. B. NELSON D. B. IBACH
U.S. DEPARTMENT OF AGRICULTURE

This significant report was compiled by the U.S. Department of Agriculture after thorough studies of fertilizer use in the United States. Crop-Use Patterns covers questions which, until now, have not been adequately answered. Crop-Use Patterns is based on information gathered from every fifth farm surveyed in the most recent U.S. Census . . . providing a broad base of national information.

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how fertilizer is used among major crops
how much acreage for each crop is fertilized

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Hay and Cropland Pasture

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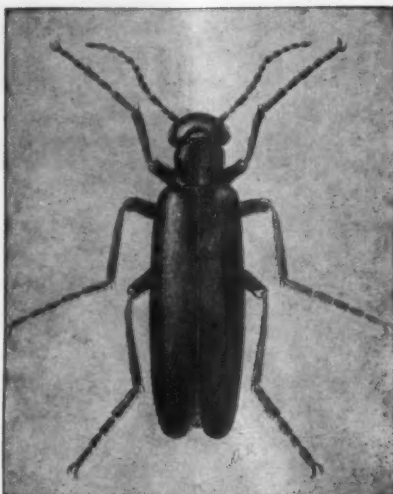
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\$2.00 per copy

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City Zone
State

BUG OF THE WEEK

Mr. Dealer—Cut out this page for your bulletin board

Blister Beetle



How to Identify

Blister beetles are relatively large, measuring up to a full inch in length. Depending upon the species (of which there are several), the insect may be black with narrow light-colored stripes on or at the edge of the wings. Others may be grayish colored, spotted or striped.

Habits of Blister Beetle

The life histories of all species of blister beetle are not known, but those about which information is available, spend the winter months in the larval stage. While in the larval stage, some species actually serve mankind as destroyers of grasshopper eggs. In a given year, some species of blister beetles have two generations, others only one. Females lay their eggs in the soil in groups up to 100. In ten days to three weeks, the eggs hatch into larvae which dig through the soil looking for grasshopper eggs which they eat. The development of the insect from this stage is complicated. It molts four times, undergoing

entirely different changes, emerging at last as an adult which attacks many varieties of plants.

Damage Done by Blister Beetles

Being widely distributed throughout the U.S., the blister beetle feeds on a number of crops including both field and garden areas. Alfalfa, clover, soybeans, and garden plants are all on the list for damage by this pest. Plant growth is stunted in many cases, and yields reduced. On the human side, the beetle, if crushed on the skin, will cause blisters to arise on the spot, hence its name.

Control of Insect

When crops of considerable value are infested with blister beetle, various controls recommended by state entomologists are effective and economical. In small gardens, it is possible to knock off the beetles by hand into kerosene, some pamphlets on the subject have pointed out.

Illustration of blister beetle furnished Croplife through courtesy of U.S. Department of Agriculture.

Georgia Agricultural Extension Service Pushes for Higher 1960 Corn Production

ATHENS, GA.—Corn production is on the rise in Georgia. To make it rise even faster, the Georgia agricultural extension service is pushing a corn production program for 1960. This is the word from J. R. Johnson, extension agronomist and project leader with the Georgia extension service.

Corn, continues Mr. Johnson, is the principal grain crop in Georgia. In 1958, 2,711,000 acres were planted to this crop and the state average corn yield was 32 bu. per acre. Total production was 86,000,000 bushels which had a value of \$108,000,000. This represents 30% of the total crop production income in the state.

But Georgia needs at least 80,000,000 more bushels of corn than is now being produced and it is with this goal in mind that the corn production program is being launched.

The increased production of corn in Georgia will be effected in two ways: by increasing yields per acre, and by expanding the acreage devoted to this crop. The goal set by the Georgia extension service is a state-wide average of 40 bu. per acre by 1965. High corn production is not only a sound practice economically speaking, it is a good agronomic practice, Mr. Johnson says. Thickly-spaced, highly-fertilized corn is one of the best soil conservation practices that can be followed by Georgia farmers. The program will be started in the fall of 1959 in 32 counties. The counties selected are those in which soil fertility programs have been carried out just recently and Mr. Johnson says that this constitutes merely a continuation of the expended agronomy extension program in these counties. To ensure the success of this undertaking, county agent training meetings are scheduled for early fall. These will be followed by county kick-off meetings to inform county leaders of the importance of this program to their county.

FMC Names R. H. F. Dade To Manage New Facility

NEW YORK—Food Machinery & Chemical Corp. has appointed R. H. F. Dade as general manager of the chemical facility it will design, construct and operate for the Army Chemical Corps at Newport, Ind. Mearlin L. Sims has been named resident manager and will be succeeded as plant manager of FMC's Nitro, W. Va., plant by Leonard G. Nussbaum, former production manager of FMC's Baltimore, Md., plant.

The contract for the Newport facility recently awarded FMC by the Army Chemical Corps, totals \$13,235,000 and is for a two-year period. Employment will reach a peak of about 400 during the construction phase and about 175 during the operating phase.

Mr. Dade, who is a vice-president of the chemical divisions, was previously assistant manager of the organic chemicals department. Earlier he managed FMC's Fairfield chemical division and before that was associated in various capacities with the Niagara chemical division.

Before his present appointment, Mr. Sims spent two years as resident manager of the Nitro, W. Va., plant of FMC's Chemicals and Plastics Division. He had been associated with this plant in other capacities since 1946.

SUN OIL APPOINTMENT

PHILADELPHIA — Winthrop M. Barnes has been appointed assistant director—petrochemicals of Sun Oil Co.'s research and development division, according to an announcement by Dr. Robert M. Kennedy, research director. Mr. Barnes succeeds Dr. Raymond Wynkoop who was appointed manager of basic research earlier this year.

The extension specialist will provide the county agents with news articles, radio tapes, TV aids, slide sets, publications, result demonstration outlines, method demonstration materials, postcards, posters and background information on the county. The results of the corn grown will be measured in terms of acres planted, production per acre, increased net county income from corn and the number of farmers participating in "One Thousand and One Hundred Bushel Corn Clubs."

This program is being supported in part by grants from individual fertilizer manufacturers, seed companies, limestone companies, nitrogen suppliers, the American Potash Institute, the Georgia Plant Food Educational Society, and the National Plant Food Institute.

Agricultural Research Center Established

SAN FRANCISCO, CAL.—An agricultural research center has been established by Stanford Research Institute to be attached to the Southern California Laboratories in South Pasadena. The center is under the direction of Harris M. Benedict, senior plant physiologist.

Stanford Research Institute has had experience in the field of agricultural economics, agronomy and animal husbandry. The new center will enable the Institute to apply its scientific resources to a broader spectrum of agricultural problems. The center will carry out research within Stanford Research Institute, and will also have limited funds available to sponsor research by qualified organizations and individuals.

Mr. Benedict was associated with the U.S. Department of Agriculture for 15 years before becoming Institute staff member in 1950. Since com-

CROPLIFE, Aug. 17, 1959—17

ing to the Institute, he has specialized in research on the effects of air pollution on vegetation. He also has done research in seed germination, inorganic nutrition, plant growth regulators, radiation effects on plants, and radioactive tracers in plants.

In 1957, Mr. Benedict organized a tour of scientists to study problems of tropical agriculture in Central America.

PYRETHRUM

(Continued from page 1)

and sales may extend over a period of several months.

Import patterns for pyrethrum have changed considerably over the past seven years. Prior to that, pyrethrum flowers were shipped into the U.S. to be processed here. Now, however, semi-processing plants are in operation near the growing areas in Africa, while such facilities are under construction in Ecuador.

Monsanto's "Red" Emm says:

HERE'S A WEED-KILLER LINE THAT SELLS ITSELF...

The display, the product, and the container — all of them sell for you

This display answers your customers' questions. It's a full size, life like reproduction of Monsanto's "Red" Emm.

Your customer just dials the crop selector to find out what to use for his particular weed or brush problem.

"Red" saves you time...and tells your customers what weed killers to buy!

Quality products always get repeat sales...and farmers know they can depend on the Monsanto Brand. Seven weed killers, six brush killers and two new spray-as-you-plant weed killers... Randox® and Vegadex® ...give you a full line to stock!



The containers "tell" and "sell". With every Monsanto can—including the new 5 gallon, "easy-flow" spout-top can—your customers get complete, step-by-step directions. The special packet tells the farmer in plain language everything he needs to know!

P.S. Let me tell you more about how the Monsanto line can help you sell this year; Mail the coupon today!

MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, Farm Chemicals Department, St. Louis 66, Mo. Please send me more information on the Monsanto Weed and Brush Killer line.

Name _____
Firm _____
Address _____
City or County _____ State _____



Helicopter Fleet Makes Power Line Brush Control Simple for Ontario Firm

A HAPPY combination of herbicides and their application via helicopters has proved profitable to Ontario Hydro of Canada, an electrical utility with some 9,000 miles of high-voltage transmission lines which must be kept free of brush and other unwanted vegetation.

With a total of seven helicopters, including a new gas turbine "Alouette II" which carries a payload nearly 2½ times that of its six sister craft, the utility firm has waged a successful aerial attack on thousands of acres of new scrub growth in northern Ontario. This growth, if left unchecked, would soon make access to the power "corridors" difficult, if not impossible. Eventually there would be interference with the conductors themselves, the company says, and consequent power interruptions for the mines and mills and the growing communities in this section of Ontario.

The scale of this phase of line maintenance becomes apparent when the extent of Ontario Hydro's transmission facilities is considered. At the present time the thousands of miles of high voltage transmission line represent at least 100,000 acres of rights-of-way, requiring brush control throughout Ontario. In addition, growth must be cleared from many sections of the province-wide rural distribution system, which includes more than 45,000 miles of line.

Attack from the air fulfills a new facet of the chemical method of brush control introduced less than 10 years ago.

Manual cutting provided the only practical method of control prior to 1949. Since woody growth in cutover areas will sprout from two to 10 feet in a single growing season, it was impossible to gain more than a two-to-three-year respite in any section where control was required. Chemistry then came to the rescue in the form of improved herbicidal sprays and mobile ground equipment was soon pressed into service along all but the most inaccessible transmission lines.

The original program was based on the assumption that each section of line would require spraying four times in a 10-year period. It was found, however, that an average of three sprays would accomplish the necessary control once a thick mat of rank grass and low-growing vegetation developed, making it much more difficult for these seedlings to establish themselves. Thus the cost of chemical brush control is expected to decline considerably in the second and succeeding 10-year programs.

The use of aircraft in those areas where even the most rugged mobile ground equipment could not penetrate seems to be a natural evolution. Experiments were first carried out using conventional aircraft on a contract basis, and while results were encouraging the technique and equipment proved inadequate. The utility commission turned to its own versatile helicopters in 1956 and the extent of the spraying program attests to their success.

From June until September of 1958, the "copters," working in the most inaccessible sections of northern Ontario, treated approximately 5,500

acres of right-of-way area in the northwest section and about 1,000 acres in the northeastern part of the province with herbicides. This was in addition to the helicopters' regular line patrol duties, for their new role evolved as the result of team work between Hydro's forestry section, which handles brush control, and the line maintenance department, responsible for maintaining and operating the aircraft.

After exhaustive tests, the two groups, in cooperation with the aircraft manufacturers, developed special spray gear consisting of two tanks of 40-gallon capacity each, mounted on either side of the "bubble." Each tank is fitted with multi-nozzled spray booms extending outwards almost as far as the rotor blades.

The intense down-draft created by the whirring rotors, coupled with lower flying speeds, enable the helicopter to perform better than conventional aircraft in controlling the spray patterns.

In spraying from the air, the greatest single limiting factor is the weather. Since overshooting the target might result in damage to adjacent woodlands, flying is frequently confined to a few hours after dawn and just before sundown when the wind is usually lightest and drifting is least likely to occur.

To make the most of these calm periods, three helicopters were used in the northwestern region in 1958. This arrangement permitted a continuous flying cycle, with at least one machine in the air while each spraying sortie was in progress. Skipping or overlapping was eliminated as one aircraft was ready to move in when the tanks of the preceding machine were exhausted.

Of particular assistance was the radio equipment in each "whirlybird." By noting the numbers on the transmission towers visible from the air, a pilot could readily pinpoint the limits of the area he had covered and relay this information to the next aircraft. Each flight required only a few minutes to complete. Thus "refueling" was almost continuous, and forestry crews, standing by with tank trucks of the spray mixture, were kept on the "hop."

Since brush control operations were instituted, Hydro's research division has played an indispensable role in developing the various herbicidal mixtures. Today the material used in this brush control effort is a "leaf-stem" spray, consisting of equal parts of 2,4-D and 2,4,5-T, with oil as a carrier.

A single application in concentrations as low as seven gallons to the acre has been found to be almost 100% effective against such species as poplar, sumac, birch and willow, while hardier woody plants require two or three doses. Conifers are the most resistant of all, but experiments indicate that they too will succumb to chemistry.

For the present, aerial spraying is confined to the remote sections of Hydro rights-of-way to avoid possible damage to susceptible crops, valuable timber stands and ornamental shrubs. Meanwhile techniques and chemical sprays are being improved to such an extent that airborne spraying may eventually become economical and

AERIAL BRUSH CONTROL—Ontario Hydro, Canadian electrical utility, has a fleet of seven helicopters for use in applying herbicides to some 9,000 miles of high-voltage transmission lines. Top photo shows herbicide loading area where relay system permits one helicopter to operate while two others refill their tanks. Center photo: helicopter skims over transmission lines of Ontario Hydro applying chemical herbicides to check brush growth. Bottom picture shows contrast between treated area and adjacent woods as helicopter puts on finishing touches.

safe in the more populous areas. At any rate the era of the axe-wielder in brush control appears to be just about over.

As a public service, the Ontario Hydro helicopter fleet stands ready to assist in emergencies such as forest firefighting, air searches and rescue work. When hurricane Hazel unleashed disaster on the Metropolitan Toronto area in 1954, Hydro helicopters rescued at least 100 flood victims.

In addition to these unusual assignments and their brush-control operations, the helicopters do many other helpful chores for the company. Power line patrols, aerial photography, surveys and line-stringing across gorges and rivers are all part of the day's work for these versatile birds. Hydro's pilots, with a combined flying experience of more than 48,000 hours, spend most of their time on inspections of the thousands of miles of high-voltage transmission lines.

During the past 10 years, more than a million circuit miles have been patrolled by the staff consisting of only 19 men; seven pilots, seven engineers and five line supervisors as observers.

Salesmen's School Program Plans Made

RALEIGH, N.C.—Program plans for the 1959 North Carolina Fertilizer Salesmen's School, to be held at North Carolina State College, Sept. 3-4, have been announced by the North Carolina Soil Fertility Advisory Committee.

Highlights of the program will include:

- "What Is a Good Salesman," by Ralph Everett, management consultant, Empire Sales Training, Inc., Miami, Fla.
- "What Are We Selling?" by A. P. Gates, general sales manager, Virginia-Carolina Chemical Co., Richmond, Va.
- "What Are Our Customers Like?" by M. S. Williams, chief economist, National Plant Food Institute, Washington.
- "A Farmer's Viewpoint of Fertilizer Selling," by R. S. Fisher, outstanding Young Farmer of America, Rocky Mount, N.C.
- "The Sale: Bringing the Customer and Product Together," by J. M. Curtis, in charge of extension marketing, North Carolina State College.
- "Success in Selling," banquet speech by E. A. Falls, professor of economics, North Carolina State College.
- "Why Should a Farmer Buy Fertilizer," W. C. White, soil fertility extension specialist, and W. L. Turner, extension farm management, North Carolina State College.
- "Some Successful Agronomic Selling Tools," by E. J. Kamprath, director, soil testing division, North Carolina Department of Agriculture.
- "Public Relations: You, Your Industry and the Public," by George H. Soule, agricultural products information specialist, public relations department, E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

Also included in the program are a tour of the department of soils at the college and a banquet.

Vulcan Announces New Sales Manager

BIRMINGHAM, ALA.—David W. Lynch has been named to the new position of sales manager—national accounts, according to an announcement by Gordon D. Zuck, president of Vulcan Steel Container Co. of Birmingham.

Mr. Lynch will headquarter at the company's main offices in Birmingham and will contact all multiple-plant companies using steel pails and drums.

Vulcan Steel Container Co. makes a complete line of steel pails in all styles and sizes.

V-C Chemical Strike Ends with Ultimatum

MULBERRY, FLA.—A 72-day strike of some 625 phosphate workers at the Virginia-Carolina Chemical Corp. operation in Polk County, Florida, ended after company officials issued an ultimatum.

The employees returned to their jobs and will continue negotiations.

Issues at stake during the violent strike were clauses in a proposed contract concerning contract dealing with the union dues-checkoff system, length of the contract, seniority rights, overtime and shift-differential payments.

Justin Potter, president of Virginia-Carolina, handed the workers the following ultimatum: "Return to work or lose your jobs."

Mr. Potter's correspondence with the union officials said the firm planned to permanently replace employees who didn't show up for work.

Research Foundation Forms New Information Department

MADISON, WIS.—Formation of a new information office for the Wisconsin Alumni Research Foundation, Madison, has been announced by Ward Ross, managing director of the Foundation. Mr. Ross simultaneously announced the appointment of Joe Abrams to head the new department.

The information office, a part of WARF's licensing division, has been established to keep industry and the public acquainted with the Foundation's rapidly expanding development and licensing activities. It will also maintain a continuing educational program to support the various inventions administered by WARF.

Mr. Abrams was previously information specialist with the Quartermaster Food and Container Institute for the Armed Forces. He subsequently served in both an editorial and

management capacity in industry, specializing in pest control and commercial pesticides.

Grasshopper Spraying Nears Completion in Wyoming

CHEYENNE, WYO.—Aerial spraying of 200,000 acres of Wyoming rangeland to control grasshoppers is almost complete, the State Agriculture Department has announced.

The 1959 program was concentrated in Johnson County, where the greatest infestation of grasshoppers occurred.

Other counties in the program included Goshen, Platte, Hot Springs, Fremont and Park.

Otto Engendorff, deputy agriculture commissioner, said the spray planes would finish all by a few isolated spots this weekend.

Christler and Avery, Greybull Service, was low bidder and received the contract for 1959 spraying.

DRY YOUR SORGHUM IN THE FIELD ... Use PENCO® DE-FOL-ATE® (LIQUID OR DRY)

ADVANTAGES

- Reduces grain losses—minimizes the danger of loss by early freezes
- Reduces moisture content
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Ask for PENCO DE-FOL-ATE . . . Request free Technical Bulletin No. N-24.

PENNSALT OF WASHINGTON DIVISION
PENNSALT CHEMICALS CORPORATION

309 Graham Bldg., Aurora, Illinois





THIS IS THE new insecticide mixing plant of the California Spray-Chemical Co., Brownfield, Texas. During cotton growing season, company has been manufacturing 8,000 gallons daily.

Chemical Company Enlarges Texas Plant

BROWNFIELD, TEXAS—Expanding rapidly to take care of the vast cotton-growing area in west Texas and New Mexico, the California Chemical-Spray Co. recently completed a liquid mixing and blending plant at Brownfield, Texas. The company had located a warehouse and distribution center here in 1957, then saw the need for manufacturing facilities.

"We've been running 18 hours a day," said Everett Goen, warehouse foreman who was recently transferred here from another company plant at Bossier City, La. "Total production averages around 8,000 gal. per day."

The plant is now making several kinds of cotton insecticides. Ground has also been broken for the construction of a plant for making cotton desiccants. This will be in operation by the middle or last of September, when farmers usually start defoliating cotton. Another product now being manufactured is "Ortho C-56," herbicide for controlling Johnson grass.

"At present we have five salesmen, four truck drivers and about 20 workers in the plant," Mr. Goen said. "We also have several entomologists or field checkers who hold field demonstrations and help acquaint dealers with new products and their use."

Calspray is only one of several large companies operating in this area. Practically all of them have moved in within the last five years.

"Much of this is due to the educational campaigns carried on by the extension service, experiment stations and the chemical companies," said Mr. Goen. "Irrigation may have reached a peak, but farmers are learning that they must farm chemically

to make a profit. Five years ago only a few farmers practiced insect control from planting to harvesting time. Now practically everyone does it, and yields are still rising."

Mileage Payments to Fertilizer Salesmen Reach All-Time High

CHICAGO—The cost of keeping a farm chemicals salesman on the road in an automobile has reached an all-time high.

Mileage payments to fertilizer industry salesmen driving their own cars on company business reached a national average of 8.76¢ per mile this year, the closest they have inched to the 9¢ mark. National average for all industries is 8.91¢, also a record high.

This represents a jump from a year ago, when the national average was 8.22¢ per mile. It is an increase of 15% over 1957, when the national average was 7.72¢ per mile.

This was reported by A. J. Schoen, president of Wheels, Inc., Chicago, an auto fleet leasing firm. Wheels' survey represents reports from 327 companies operating national, regional, and local auto fleets, ranging in size from 25 to 1,000 cars. Companies paying a flat mileage rate and those paying rates on a sliding scale based on territory were both included.

HONORARY DEGREE

FARGO—Donald G. Fletcher, executive secretary, Rust Prevention Assn., Minneapolis, received an honorary doctor of science degree from the North Dakota Agricultural College on May 24. Recognition was made of Mr. Fletcher's activities in behalf of agricultural research and control programs.

EXPLOSION

(Continued from page 1)

nitrate." Most ammonium nitrate manufacturers recommend that when ammonium nitrate is used as a blasting agent, it should be mixed with the organic substance only at the use-site, not mixed before transportation.

The Interstate Commerce Commission, which has indicated that the explosives-laden truck was subject to ICC jurisdiction, is making a full investigation of the case. Title 49 of ICC regulations states that a driver shall not leave unattended a vehicle loaded with any explosive material nor shall such a loaded vehicle be parked near a building, tunnel, bridge, or in a heavily populated area.

Sen. Richard L. Neuberger (D., Ore.) commented: "This tragic explosion, on top of other recent incidents, shows a need for a complete review of safety regulations governing cargo movements of this type." Rep. Charles O. Porter of Oregon's 4th District concurred with the Senator and added, "The chemical industry ought to do something to prevent further disasters from such causes."

It is expected that many cities, states, and ports will now reexamine ordinances covering shipments of explosives. The Roseburg disaster follows by only eight months the Maryland port authority's ruling on transshipment of ammonium nitrate—designed to prevent a similar occurrence in the port of Baltimore. Representatives of MCA and NPFI cooperated with regulatory groups in Baltimore in formulating an ordinance considered to be a model law.

Roseburg is a city of 13,000. The blast, occurring at 1:30 a.m., was heard 30 miles away and observed as far away as 45 miles. The force of the explosion tore a tremendous cra-

ter in the earth and totally demolished a 12-block square area of the city.

Cause of the fire which ignited the warehouse near the truck's parking place has not been determined.

Olin Mathieson to Expand Manufacturing Plants

NEW YORK—Olin Mathieson Chemical Corp. has announced plans for a \$30 million expansion program in organic and inorganic chemicals. The program includes expansion of existing facilities at Brandenburg, Ky., to double production of "Poly-Solv", a solvent used in pesticide formulations. The same is true of the firm's line of surfactants and ethylene dichloride.

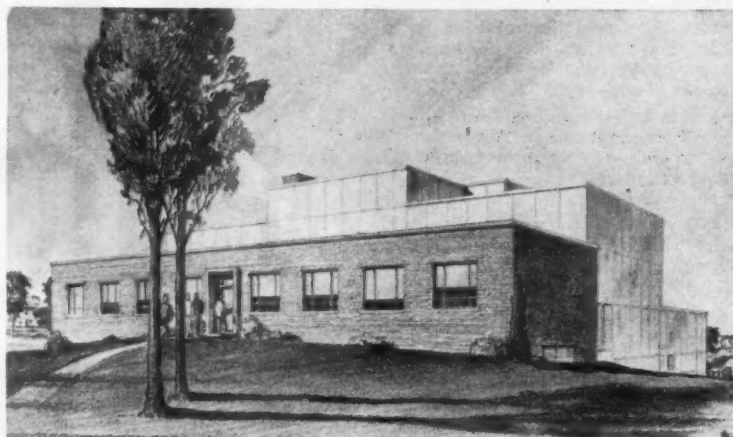
Other facilities slated for expansion are for a number of industrial chemicals. The program is part of the company's five year program in the manufacture of chemicals, metals, packaging, pharmaceuticals, energy, and sporting arms and ammunition, according to Stanley de J. Osborne, president.

In addition to this expansion program, Olin Mathieson recently announced that it is investing \$4 million in a joint venture with Sun Oil Co. to produce urea at North Claymont, Del. (Crolife, June 29, page 1).

Packaging Firms Announce Merger

NEW YORK—Arenco AB, Stockholm, Sweden, has acquired controlling interest in Alite Machines, Ltd., Letchworth, England, announced Roy Johnson, president of Arenco Machine Co., New York, a subsidiary.

The formation of the new company, to be called, Arenco-Alite Machines, Ltd., enables the firm to offer a more complete line of machinery for the packaging field, Mr. Johnson said.



SPENCER CHEMICAL CO.'S process development department will be housed in this new building, soon to be constructed at the company's research center in Kansas City. The new building, fourth to be constructed at the research center, will have 11,000 sq. ft. of floor space for process development activities and offices.

Spencer Chemical to Add Research Building

KANSAS CITY—Spencer Chemical Co. has announced plans for the construction of a new building at its research center to house its process development department.

According to Dr. Nat C. Robertson, vice president—research and development, the building, fourth to be constructed at the center, will centralize the functions of the process development department. Until recently, the majority of its work had been conducted at Spencer's Jayhawk Works near Pittsburg, Kansas.

To be located southwest of the main administrative-laboratory building at the center, the new structure will have approximately 11,000 sq. ft. of floor space for process development

activities and offices. Dr. Robertson said that construction is expected to begin in September and completion is estimated for early in 1960. Architectural details of the new building will include a brick front, harmonizing with the other center buildings. Sides and back of the structure will be of insulated cement-asbestos panels on a steel framework. At its highest elevation, the new building will have a 36-ft. ceiling to enable the movement and operation of pilot-scale process equipment.

Personnel of the process development department, which will be under the direction of Dr. O. V. Luke, director of central research, include: L. G. Stevenson, group leader; D. L. Kloepper, staff member; W. J. Wright; J. M. Payne and Donald Ewert, staff associates.

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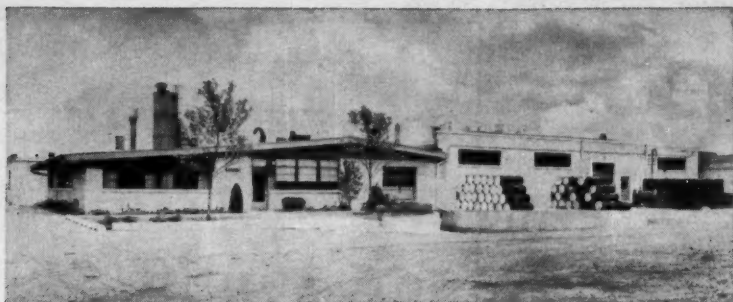


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EXPANSION PROGRAM—Hodag Chemical Corp. has completed construction of its enlarged production, laboratory and office facilities in Chicago. The firm makes emulsifiers, flocculating agents and other surface-active agents for agricultural and industrial chemicals. The construction has quadrupled Hodag's former plant space, the company says. The illustration shows the new facilities.

Northwestern Ohio Corn Crop Partially Destroyed by Leaf Aphid Infestation

CLEVELAND, OHIO — Northwest Ohio's corn crop is being threatened by the worst infestation in years of the corn leaf aphid.

The pest is killing tassels during the pollenizing period and sucking the sap from the leaves. Damage will show up at harvest time in barren stalks and nubbins, entomologists point out.

Despite efforts by farmers to control the infestation by aerial application, the damage has already been done. Dr. Claude Neiswander, entomologist at the Ohio Agricultural Experiment Station in Wooster, said Aug. 7. The state had an observer in the area for two weeks, checking fields where as many as 50% of the plants are practically crawling with lice.

Very few aphids have been reported outside of the northwest quarter of the state, which also happens to be the richest corn section.

Dr. Neiswander questioned the effectiveness of aerial spraying, indicating that it is difficult to get good coverage.

As to the infestation, he said, "You can find a colony of corn leaf aphids here and there almost any year, but once in six or eight years we get important damage. This is the biggest rampage yet."

He said the most severe damage

FIRE ANT MARCHES

DALLAS, TEXAS — The troublesome fire ant is still marching westward. The latest infestation has been in northwest Dallas, where John White, state agriculture commissioner, has slapped on a 30-day quarantine.

This forbids the movement of dirt, gravel and nursery stock from the area. The action came at a meeting of federal, county and city health and agricultural agencies. The meeting was called to make plans for eradicating the fire ants in Dallas County.

New U.S. Policy on Leased Potash Lands

WASHINGTON—The U.S. Department of the Interior has made a change in its leasing policy on potash acreage contracts which will, it is said, provide more flexibility for operators of potash properties.

This modification has increased the maximum land available under lease contracts from 15,360 acres to 25,360, an advance of 10,000. At the same time it adds an additional 25¢ an acre for prospecting.

MEETING DATES SET

RALEIGH, N. C. — The annual meeting of the Carolinas-Virginia Pesticide Formulators Assn. will be held Dec. 1-3 at the Carolina Hotel, Pinehurst, N. C., announced Frank S. Reid, president.

was triggered by dry weather. During rainy seasons the cornstalk can replace the sap taken by the insects.

Typical of several aerial dusting firms crisscrossing the area is the Ohio Dusting Service of Pandora. L. J. Frey, proprietor, estimated his own and leased planes had covered 9,000 acres in two weeks of "daylight to dark" spraying.

One mishap marred the operations. A plane operated by Rusk Crop Spraying Co. of Valparaiso, Ind., crashed near Marion. The pilot, Ralph Mielke, 40, of Milwaukee, was taken to a hospital in serious condition. The pilot had cut his motor to ask a farmer directions to a field he was to spray and apparently was unable to get it started again. He was flying between 100 and 150 feet.

Tennessee Fertilizer Sales Jump 17%

KNOXVILLE, TENN.—Tennessee fertilizer sales in 1958-59 show an increase of more than 17% over the preceding year. For the fertilizer year ending June 30, 1959, the total tonnage of fertilizer sold in Tennessee exceeded 572,000 tons, according to Dr. W. D. Bishop, extension agronomist, University of Tennessee. This compares with 489,000 tons for 1957-58.

Soil testing in Tennessee has increased by 80% for the first half of 1959. Some 20,480 soil samples have been analyzed by the University of Tennessee Soil Testing Laboratory, Nashville, for the first six months of 1959 as compared with 11,370 samples for the same period in 1958, according to Joseph N. Matthews, assistant agronomist in charge of soil testing.

IMC Purchases Ohio Fertilizer Facilities

CHICAGO—International Minerals and Chemical Corp. has announced its purchase of the Miami Fertilizer Co. at Trebein, Ohio, near Dayton. The latter firm produces "Big M" dry granular fertilizers, sold principally in the Miami Valley area of Ohio.

Facilities include a fertilizer mixing plant and a granulating unit. Charles F. Martin will continue to manage the plant, with Clarence Crickmore in charge of production.

The merger was expected to go into effect around the middle of August. The Ohio company employs some 15 persons.

International Minerals makes its headquarters at Skokie, Ill. It has a total of 68 plants in the U.S., Canada and Mexico. Of these, 25 are fertilizer manufacturing plants.

DDT

(Continued from page 1)

tion or by clinging to the walls and bottoms of containers.

This previously unknown action of the insecticide was discovered by USDA entomologists and chemists at Orlando, Fla., in their attempts to determine why simple mosquito-resistance tests in laboratories failed in some instances to provide reliable data.

By duplicating the tests with DDT tagged with radioactive carbon atoms, the scientists traced the movement of the insecticide in the water. They found that DDT was lost by evaporation concurrently with water, by co-distillation. Further, they found that DDT is so hydrophobic (water-hating) that it tends to concentrate on the upper water surface and container wall and bottom surfaces.

Within two minutes after stirring in 1 part of DDT to every hundred million parts of water, as much as a third of the DDT had fled to the walls and bottoms of the containers whether made of paper, glass, or aluminum. Further, in 24 hours more than half the DDT, long known for its persistence and non-volatility, had evaporated.

Similar tests with other insecticides—parathion, malathion, lindane, and dieldrin—did not show this action. Indeed, the behavior of DDT in water surprised the scientists. This was all the more remarkable since DDT has been investigated for many years, is used more than any other insecticide, and probably more is known about it than any other insecticide.



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Brainwashing Children Against Pesticides

THE SUBJECT of insecticides and their public relations aspect seems to be a never-ending source of comment and discussion. With the line being drawn more definitely between those who know the value of pesticides and favor their broad use; and those who would ban their use, the battle is becoming hotter.

Looking beyond the immediate situation, which is rugged enough, one sees evidence of future difficulties springing from present misunderstandings. What will be the attitude of the oncoming generation toward pesticides? Will the present conflicts affect the thinking of today's children so that when they become adults and have a voice in how their society should be run, they may harbor unfriendly attitudes towards pesticides?

Apparently that is just what some people want. If today's kids can be brainwashed so they are "against" pesticides, then a large part of the future battle may be won, they seem to figure.

Thus we see insidious propaganda creeping in some of the literature being absorbed by the youngsters. As an example, following is an excerpt from a recent issue of "My Weekly Reader," one of the largest school papers for child readership, with broad circulation all over the country:

"DDT is a poison. It is sprayed on trees and other plants. DDT kills insects that feed on plants. Scientists are learning that DDT kills or harms other living things, too. Earthworms feed on fallen leaves under a sprayed tree. The DDT stays in the worms' bodies. When robins eat these earthworms, the robins may die. Many other kinds of birds have been killed by DDT. For example, eagles are getting scarce. Many have been killed by DDT."

A child might accept the insinuation that eagles are becoming scarce because of DDT, but few fair-minded adults would concede such a point. Dinosaurs and mastadons were also getting scarce and their numbers mighty few long before the day of modern pesticides. The long-extinct dodo and other former denizens of North America may have had prophetic visions of the development of DDT and died of fright. We don't know, but there are undoubtedly people around who would like to think that.

How much more sensible it would be for writers of "educational" material to tell the children about the benefits of pesticides . . . about diseases that have been brought under control through the killing of insect vectors; about the worm-free fruits and vegetables their mothers buy at the market; and how the trees are protected from destructive bugs so birds will have a place to build their nests and may sing contentedly.

There is so much more to be said on the affirmative side that one wonders why writers seem so prone to seek out negative angles and present half-truths as gospel.

Fish Pond Fertilization

WHILE seeking new outlets for fertilizer sales, some enterprising individuals who are not afraid of getting their feet wet, are selling additional amounts of plant food to farmers who have fish ponds. Prospective buyers of fertilizer for this purpose include not only farmers, but municipalities who stock water supply lakes and ponds with fish for the use of citizens.

Recent reports indicate that fish farming has become big business in the U.S. Some official figures have placed it at \$20 million a year.

Fish farming is a logical part of good farm management, with ponds being built as part of water and soil conservation programs. These bodies of water are stocked

with fish at the ratio of a thousand bluegills to 100 bass an acre in some southern areas. These fish seem to be the best combination for warm-water ponds. Bass thrive on a diet of small fish, and the bluegills, given plenty of nourishment, spawn frequently throughout the summer, providing food for the hungry bass.

Now, where does fertilization come in? Extra amounts of plant food are essential to the operation. The U.S. Department of Agriculture has made recommendations for mixed fertilizer with a balance of nitrogen and phosphorus. This stimulates the growth of organisms on which insects and small water animals feed, and these in turn provide necessary nourishment for bluegills. The average farm pond takes from 800 to 1,200 lb. fertilizer an acre an year in periodic applications from early spring through fall.

Multiple advantages are realized through adequate fertilization, it is reported. Application of plant food not only increases fish production, but also makes possible a standard rate of stocking the pond with fish. At the same time, it prevents growth of cattails and other aquatic weeds. As the microscopic organisms grow, they screen sunlight from the bottom of the pond, then without waterweeds to harbor them, mosquito larvae are eaten by the fish.

So here we have fertilizer acting not only as a nutrient, but as a sort of weed inhibitor and insecticide as well. Local fertilizer people might do well to investigate the possibilities of adding to their annual tonnage through promotion of pond and lake fertilization.

Despite the obvious connotation, there is really nothing "fishy" about the idea.

Mr. K. to Get an Eyeful When Visiting U.S. Farms

WHEN Nikita Khrushchev visits the U.S. on his upcoming trip, the Soviet boss may get an eyeful when he tours American farms and observes the role of fertilizers and pest control chemicals in making our agricultural production so plentiful. In fact, it may be downright embarrassing to the Russian leader whose agricultural efforts have fallen considerably short of previously-set goals.

Khrushchev has been partially successful in upping his country's food supply but, by U.S. standards, the great sweat and strain devoted to this enterprise have been less than spectacular.

Stalin's former policies of demanding "tribute" from the peasants proved both unpopular and unproductive. Mr. K.'s ideas have been a little more lenient, with surprising concessions allowing some capitalistic ideas to creep in. For instance some 56% of Russia's dairy cows are individually owned, and also a significant portion of garden plots, livestock and poultry are in private hands.

Last year's record harvest of grain, backbone of the Russian diet, is still not tremendous at 139.4 million metric tons, in view of a population of 209 million persons. American farmers fed more grain to livestock than the entire Russian "record" output.

The manpower (or more accurately, "womanpower") needed to produce crops in Russia would wreck the U.S. agricultural economy. It takes about 45 million people, 43% of the entire labor force, to feed the country, as contrasted to only 8.1 million farmers feeding 175 million persons in the U.S. And even this contrast fails to tell the whole story, since Americans consume far more goods per capita than do the Russians.

The agricultural chemical industry may take quite a little pride in its contribution to America's magnificent agricultural record. Possibly even rotund Mr. K. himself, well-fed though he apparently is, would concede this point.



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CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition, the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is \$5 for one year (\$8 a year outside the U.S.). Single copy price, 25¢.

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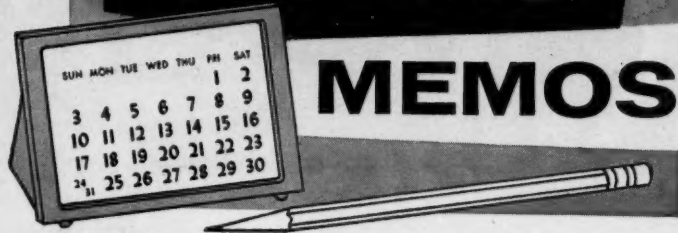
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MEETING

MEMOS



Sept. 13-18—American Chemical Society, national meeting, Haddon Hall Hotel, Atlantic City, N.J.

Oct. 12-14—Association of Official Agricultural Chemists, annual meeting, Shoreham Hotel, Washington, D.C.

Oct. 16—Association of American Fertilizer Control Officials, Shoreham Hotel, Washington, D.C.

Oct. 16-17—American Pesticide Control Officials, annual meeting, Shoreham Hotel, Washington, D.C.

Oct. 19-23—Fertilizer Section, National Safety Council, annual meeting, Chicago.

Dec. 1-2—Annual meeting, Carolinas-Virginia Pesticide Formulators Assn., Carolina Hotel, Pinehurst, N.C.

1960

Jan. 20-21—North West Agricultural Chemicals Industry Conference, Benson Hotel, Portland, Ore., C. O. Barnard, executive secretary.

Meeting Memos listed above are being listed in this department this week for the first time.

Aug. 18—Alabama Fertilizer Conference, Horticulture Substation, Cullman, Ala. and Tennessee Valley Substation, Belle Mina, Ala.

Aug. 18-19—Midwest Fertilizer Safety School, National Safety Council Headquarters, Chicago, Ill.

Aug. 19—Alabama Fertilizer Conference, Tennessee Valley Authority, Wilson Dam, Ala. and Upper Coastal Plain Substation, Winfield, Ala.

Aug. 18-22—Annual Convention of

the Canadian Fertilizer Assn., Bigwin Inn, Lake of Bays, Ontario.

Aug. 25—Fertilizer Industry tour, Miami County, Ohio, NPFI sponsored.

Aug. 26-28—Soil Conservation Society of America, 14th Annual Meeting, Rapid City, S.D.

Aug. 28-29—Southeast Fertilizer Safety School, Heart of Atlanta Motel, Atlanta, Ga.

Aug. 28-29—Minnesota Agricultural Ammonia Institute, University of Minnesota, St. Paul, Minn.

Aug. 30-Sept. 3—American Institute of Biological Sciences annual meeting, Pennsylvania State University, University Park, Pa.

Sept. 3-4—Fertilizer Salesmen's School, North Carolina State College, Raleigh, N.C.

Sept. 10—New pesticide review for Central California, sponsored by Western Agricultural Chemicals Assn., Fresno Fairgrounds, Fresno, Cal.

Sept. 17—New Jersey Fertilizer Conference, Rutgers University, New Brunswick, N. J.

Sept. 20-23—Seventh Annual Meeting Canadian Agricultural Chemicals Assn., Chateau Frontenac, Quebec City.

Sept. 24—Fertilizer Technology & Economics School & Tour for California Bankers, University of California, Berkeley, Cal.

Sept. 24-25—Annual North-Eastern Fertilizer Conference, NPFI, Blitmore Hotel, New York, N.Y.

Sept. 25—Annual Crops Day, University of Arizona, Safford, Ariz.

Sept. 30-Oct. 1—Fourth Southeastern Fertilizer Conference, Atlanta Blitmore Hotel, Atlanta, Ga.

Oct. 13-14—Western Agricultural Chemicals Assn., fall meeting, Villa Motel, San Mateo, Cal., C. O. Barnard, executive secretary.

Oct. 14-16—Pacific Northwest Plant Food Assn. Annual Convention, Chinook Hotel, Yakima, Wash.

Oct. 15—NPFI Conference on Chemical Control Problems, Shoreham Hotel, Washington, D.C.

Oct. 21-23—National Agricultural Chemicals Assn., 26th annual meeting, French Lick-Sheraton Hotel, French Lick, Ind., Lea S. Hitchner, executive secretary.

Oct. 27—Seventh Annual Grassland Farming Conference, Extension Service, Rutgers University Col-

lege of Agriculture, New Brunswick, N.J.

Nov. 4-5—Fifth Annual Oklahoma Fertilizer Dealers and Crops and Soils Conference, Stillwater, Okla.

Nov. 4-6—Fertilizer Industry Round Table, Mayflower Hotel, Washington, D.C. Dr. Vincent Sauchelli, National Plant Feed Institute, chairman.

Nov. 8-10—National Fertilizer Solutions Assn., Annual Convention, Statler Hilton Hotel, St. Louis; Muriel F. Collier, 2217 Tribune Tower, Chicago 11, executive secretary.

Nov. 9-11—California Fertilizer Assn., 36th annual convention, Fairmont Hotel, San Francisco.

Nov. 16-20—National Aviation Trades Assn., 20th annual convention, New Orleans, La.

Nov. 30-Dec. 4—27th Exposition of Chemical Industries, New York Coliseum, New York City.

Nov. 30-Dec. 5—Joint meeting, Entomological Society of Ontario; Entomological Society of Canada and Entomological Society of America, Hotel Sheraton-Cadillac, Detroit, Mich.

Dec. 2-3—Annual Missouri Fertilizer Conference, Columbia, Mo.

Dec. 7-10—Central Canada and North Central Weed Control Conferences, Royal Alexandra Hotel, Winnipeg, Manitoba, Can.

Dec. 8-10—Joint Meeting of Western Canadian and North Central Weed Control Conferences, Winnipeg, Manitoba.

Dec. 9-11—International Crop Protection and Pest Control Exhibition, Seymour Hall, St. Marylebone, London, England.

Dec. 10-11—Annual Arkansas Plant Food Conference, Little Rock, Ark.

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Jan. 5-6—Annual Texas Fertilizer Conference, College Station, Texas.

Jan. 6-8—14th Annual Meeting, Northeastern Weed Control Conference, Hotel New Yorker, New York City.

Jan. 13-15—Ninth Annual Convention, Agricultural Ammonia Institute, Statler Hilton Hotel, Dallas, Texas.

Jan. 14-16—10th Annual Convention of the Agricultural Aircraft Assn., El Mirador Hotel, Palm Springs, Cal.

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AUGUST	SEPTEMBER	OCTOBER	NOVEMBER
S M T W T F S	S M T W T F S	S M T W T F S	S M T W T F S
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
DECEMBER	JANUARY	FEBRUARY	MARCH
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APRIL	MAY	JUNE	JULY
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